CERCLA SITE REASSESSMENT REPORT

H. M. Arnold/Chevron Chemical Co.
GAD980556831
137 East Fambrough St.
Monroe, Walton Co., Georgia 30655

GEORGIA DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

September 11, 2002

Prepared by: _____
Billy Hendricks, Environmental Specialist

Reviewed by: _____
Bruce Khaleghi, Unit Coordinator

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SITE REASSESSMENT REPORT

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1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) the Georgia Department of Natural Resources, Environmental Protection Division (EPD) has prepared this Site Reassessment Report (SRR) at the request of EPA Region IV. The objective of this SRR is to evaluate the characteristics of the site and surrounding areas in order to provide a recommendation concerning further activities at the site. In order to achieve this objective, EPD has gathered and assimilated all readily available existing information concerning H. M. Arnold/Chevron Chemical Co. Pertinent elements of the data gathered and evaluated are presented in the sections that follow. The scope of this investigation included a review of available file information, a review of available target data, and a Visual Site Inspection (VSI), an on-site reconnaissance. No sampling was performed for the purpose of this investigation. The VSI for the H. M. Arnold/Chevron Chemical Co. site was performed March 11, 2002. (Reference 1).

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

H. M. Arnold/Chevron Chemical Co. is located at 137 East Fambrough St. in Monroe, Georgia. The site is approximately one mile south of the center of Monroe. From the courthouse square in Monroe, travel south on Georgia Highway 11 to its intersection with East Fambrough St., approximately one mile. Turn right (west) on East Fambrough St.. The facility is on the right (north) of the road (Photo 1). The geographic coordinates for the H. M. Arnold/Chevron Chemical Co. site are 33° 46' 57" north latitude and 83° 42' 20" west longitude by calculation from USGS topographic maps. The site lies at approximately 885 feet above mean sea level (msl) (Reference 2).

Monroe, the county seat of Walton County, is located in Georgia's Piedmont Plateau near the Alcovy River. The area experiences typical middle Georgia weather: long, warm, humid summers and short, cold winters. Average summer temperatures are approximately 78°F, with occasional 100-degree days. Average winter temperatures are approximately 40°F; first freeze is typically in early November, with last freeze in early April. Early autumn is usually the period of minimum precipitation, with maxima during the thunderstorm season of mid-June to late July. The area receives about 56 inches of water-equivalent precipitation in a typical year. The maximum 24-hour rainfall intensity is approximately four inches (Reference 3).

2.2 Site Description

The H. M. Arnold/Chevron Chemical Co. site was used as a Chevron Farm Store from approximately 1977 to 1994. The site comprises approximately 4 acres in a rough trapezoid within the city limits of Monroe. Elevations in the site area are roughly 900 feet M.S.L. The surrounding areas are mixed urban; residential to the north and west largely rural to a distance of over four miles.

There are no surface water features at the site; drainage is overland. The site is secured on three sides by a chain link fence of various heights, and has locked access gates. The northeast aspect of the site comprises a railroad spur and is unfenced.

2.3 Operational History and Waste Characteristics

The H. M. Arnold/Chevron Chemical Co. site was used as a Chevron Farm Store from approximately 1977 to 1994. It has subsequently been used for the manufacture of playground equipment, and is now a moving and storage company warehouse.

Improvements to the site are currently limited to a single building of approximately 20,000 square feet. There is currently no hazardous waste generation at the site.

2.4 Summary of Previous Investigations

The H. M. Arnold/Chevron Chemical Co. has been the subject of CERCLA scrutiny through the Preliminary Assessment (PA) and Site Investigation (SI) processes, in 1984. A qualifying removal was performed in May 1984. Approximately 1,200 tons of soil contaminated with pesticides was removed and disposed at a permitted land disposal facility in Pinewood, South Carolina. Concentration of total organic pesticides at the site after the removal was 18.9mg/kg at a single point (Reference 4).

Groundwater Investigations

No groundwater sampling has been performed at the H. M. Arnold site. The contaminated soil at the site was largely removed during the 1984 removal action. The potential constituents of concern, DDT, BHCs, and lindane, exhibit preferential absorption to the soil matrix and are relatively immobile (Reference 4).

3. GROUNDWATER PATHWAY

3.1 Hydrogeologic Setting

This site is underlain by both igneous and metamorphic rock. According to the Geologic Map of Georgia, biotite gneiss and schist underlie about sixty per cent of the county, with granite gneiss under the remainder (Reference 5). Groundwater in the area is found under water table conditions, stored in the mantle and fractures in the underlying bedrock (Reference 6).

3.2 Groundwater Targets

No groundwater wells in the vicinity of the site have not been sampled. No drinking water wells were identified within the 3-mile target distance ring. Therefore, no actual targets were identified. Monroe's population obtains potable water from the Monroe Water, Gas & Light Commission

("MWGLC"), which uses surface water from the Alcovy River upstream of Monroe. In the absence of a confirmed release, any water-well users reported by census data and physical survey represent potential targets.

3.3 Groundwater Conclusions

A release to groundwater is not suspected at this site. In the absence of a release to groundwater, no actual targets have been identified. The lack of actual targets indicate that the groundwater pathway is not of concern at this site.

4. SURFACE WATER PATHWAY

4.1 Hydrologic Setting

Surface drainage in the Monroe area is relatively rapid. The site is located near a hydrologic divide, and drains overland to Mountain Creek and the Alcovy River.

According to Federal Emergency Management Agency Flood Insurance Rate Map for the covered areas of Walton County, the site is located in a an area of minimal flooding, or greater-than-500-year flood area. There is no physical evidence on the property of historical flooding (Reference 7).

4.2 Surface Water Targets

The MWGLC is the agency responsible for providing water to the city of Monroe. Their water intake is located on the Alcovy river upstream of the probable point of entry. There are no water intakes within 15 miles downstream of the site (Reference1 and 6).

The Alcovy River system is a heavily utilized recreational and subsistence fishery; evidence of fishing activity was directly observed during the site visit. Each is considered a potential fishery since there is no historical or recent evidence of release to surface water.

Walton County, being relatively rural, is included in the range of a number of species of concern. No protected animals are listed for the county (Reference 8). Protected plants include *Allium speculae, Amphianthus pusillus, Draba aprica,* and *Sedum pusillum* (Reference 9). None of these species was noted as present on the H. M. Arnold/Chevron Chemical Co. site, but there are suitable habitats for the *Amphiantus* species within the fifteen-mile downstream target distance. The other three inhabit exposed granitic outcrops, none of which are within the flowpath from the site.

No permanent or seasonal wetlands were observed on the H. M. Arnold/Chevron Chemical Co. site. A variety of sensitive environments is known to exist along the 15 miles downstream of the site. These include riverine and palustrine wetlands (Reference 10).

4.3 Surface Water Conclusions

There are no currently demonstrated releases to surface water from the site. No active drinking water intakes exist within 15 miles downstream of the site. No wetlands exist on the property, but wetlands

are in evidence along the entire length of the Alcovy River downstream of the site. No other sensitive environments were identified within the 15-mile downstream limit.

5. SOIL EXPOSURE AND AIR PATHWAY

5.1 Physical Conditions

The H. M. Arnold/Chevron Chemical Co. site is located in a fully developed urban setting on the southern edge of the city limits of Monroe. Land use within one mile is urban. South and east beyond one mile is predominantly rural. North and west within one mile is the city of Monroe and its attendant commercial district. There is no heavy industry within four miles (References 1 and 6).

There are no point sources of air emissions at H. M. Arnold/Chevron Chemical Co. No maintenance or repair operations are present. No metals or carcinogens are known to be emitted from any source.

5.2 Soil and Air Targets

The H. M. Arnold/Chevron Chemical Co. site has a worker population of four. The offsite population within a 4-mile radius was determined by Ecology & Environment using GEMS and topographic information (Reference 6). The total population within this area was estimated at 10,000. The closest resident is less than one hundred yards from the property. The site is largely fenced, and has locked gates preventing free access. During the on-site reconnaissance, no evidence of a resident wildlife population was observed.

5.3 Soil Exposure and Air Pathway Conclusions

There is historical evidence of past contamination of soil and subsoil, based on knowledge of the operator and chemical analysis, but this contamination was mitigated by removal in 1984. There is no evidence of a current soil exposure pathway. There is no evidence of air releases.

6. SUMMARY AND CONCLUSIONS

H. M. Arnold/Chevron Chemical Co., in Monroe, Georgia, was assigned to be evaluated under the CERCLA Site Investigation process. Review of U. S. EPA files disclosed that the site had been previously investigated and that a qualifying removal action had been completed addressing all on-site contamination. Visual site inspection verified no new sources of contamination, and no other changes from the 1984 Site Investigation report. In conclusion, based upon available information and current site conditions, the site is not recommended as a candidate for inclusion to the National Priorities List (NPL), nor is continued site evaluation under the Hazardous Ranking System warranted at this time. It is further recommended that the CERCLIS data base be updated to reflect the previous EPA determination that no further action be undertaken.

LIST OF REFERENCES

1. Billy Hendricks, field notes of VSI for H. M. Arnold/Chevron Chemical Co., March 11, 2002.

2. U.S. Geological Survey, 7.5-minute series Topographical Quadrangle Maps of Monroe, Georgia: Monroe, Social Circle, and Jersey, Georgia.

3. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, Local Climatic Data, 30 Year Averages, for Atlanta, Georgia, 1992.

4. R. L. Timmel, Chevron Chemical Co., letter to Joseph T. Surowiec, Georgia EPD, June 15, 1984.

5. Soil Survey of Walton County, Georgia: U. S. Department of Agriculture, Soil Conservation Service, 1961.

6. Ecology and Environment, Inc., 1984, An Evaluation of the Distribution of Pesticide Compounds in the Soils Surrrounding a Former Georgia Agrichemical Warehouse.

7. U. S. Department of Housing and Urban Development, Federal Emergency Management Agency, Flood Insurance Rate Map, City of Monroe, GA, Community-Panel No. 130090A, June 28, 1974.

8. *Georgia's Protected Wildlife,* Georgia Department of Natural Resources, 1992.

9. *Protected Plants of Georgia,* Georgia Department of Natural Resources, 1995.

10. U. S. Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory Maps, Monroe, Georgia.

Appendix A

Photographs

Site Name: H. M. Arnold/Chevron Chemical	Photo 1 of 4	City, County: Monroe, Walton County
Date: 3/11/2002 Dir. Facing: N	Time: 1440	Photographer: Billy Hendricks Haz. Waste Mgmt. Branch
Explanation: View of site from road entrance		

Site Name: H. M. Arnold/Chevron Chemical	Photo 2 of 4	City, County: Monroe, Walton County
Date: 3/11/2002 Dir. Facing: NNE	Time: 1500	Photographer: Billy Hendricks Haz. Waste Mgmt. Branch
Explanation: Front of building; note "AAA American Movers" sign over office door, left.		

Site Name: H. M. Arnold/Chevron Chemical	Photo 3 of 4	City, County: Monroe, Walton County
Date: 3/11/2002 Dir. Facing: N	Time: 1500	Photographer: Billy Hendricks Haz. Waste Mgmt. Branch

Explanation: Western side of property, currently used for truck parking and vault staging. This area was excavated, adjacent to the building only, during the 1984 removal action.

Site Name: H. M. Arnold/Chevron Chemical	Photo 4 of 4	City, County: Monroe, Walton County
Date: 3/11/2002 Dir. Facing: N	Time: 1550	Photographer: Billy Hendricks Haz. Waste Mgmt. Branch

Explanation: Eastern edge of property. Railroad spur at right background. This area was completely excavated during the 1984 removal action.

Appendix B

References

Chevron Chemical Company
595 Market Street, San Francisco, California
Mail Address: P.O. Box 7145, San Francisco, CA 94120-7145

June 15, 1984

Monroe, Georgia
Remedial Work

Mr. Joseph T. Surowiec
Georgia Environmental Protection Division
3420 Norman Berry Dr.
Hapeville, GA 30354

Dear Mr. Surowiec:

Under Chevron Chemical Company's supervision, I.T. Corporation performed remedial work at our former agricultural chemical site in Monroe, Georgia. Site work began on May 1, 1984 and was completed on May 9, 1984. Following is a brief summary of the work included:

1) I.T. excavated and transported more than 1200 tons of contaminated soil from the site to the Pinewood, South Carolina disposal facility.

2) Childscapes Inc., the present site occupant, vacuumed contaminated dust from the warehouse with equipment supplied by I.T. The dust was disposed of with the contaminated soil from the site.

3) After excavation a metal locator was used to verify that no buried debris remained.

4) Eighteen soil and air samples were taken during the remedial work and analyzed for pesticide contamination.

5) The excavated areas were backfilled with a local red clayey soil which was compacted and graded to form an impervious cap. Crushed rock was spread, compacted and graded to complete the site work.

Attached for your review are copies of I.T.'s air and soil sampling reports and Ecology and Environment's results of analysis of soil samples.

ecology and environment, inc.
ANALYTICAL SERVICES CENTER, P.O. BOX D, BUFFALO, NEW YORK 14225, TEL. 716-631-0360
International Specialists in the Environmental Sciences

June 14, 1984

Mr. R.L. Timmel
Chevron Chemical Co.
P.O. Box 7145
595 Market Street
San Francisco, CA 94120-7145

Dear Mr. Timmel:

Enclosed are the amended results of analyses of soil samples and EP Toxicity Tests from Monroe, Georgia.

We thank you for the opportunity to work with you; if you have any questions, please call.

Very truly yours,

Gary Hahn/jcb

Gary Hahn, Manager
Analytical Services Center

GH/jb
enclosures

ecology and environment, inc.
International Specialists in the Environmental Sciences

LABORATORY REPORT

FOR

Chevron Chemical Company

Job No.: U-0177

Sample Date: 5/6/84 Sampled By: Client

Date Received: 5/8/84 Delivered By: Federal Express

Sample Type: Soil

RESULTS OF CHEMICAL ANALYSIS OF EXTRACTS FROM EP TOXICITY TESTS

	mg/L			Maximum* Allowable Concentration (mg/L)
E & E Lab Number	2193	2199	2200	
Customer Number	GF 9153	GF 9159	GF 9160	
Sample Location No.	5	11	12	
Arsenic	<0.005	<0.005	<0.005	5.0
Endrin	<0.000006	<0.000006	<0.000006	0.02
Lindane	0.0002	0.0003	0.0015	0.4
Methoxychlor	<0.00024	<0.00024	<0.00024	10.0
Toxaphene	<0.00024	<0.00024	<0.00024	0.5
Aldrin	<0.000004	<0.000004	<0.000004	
a-BHC	0.00036	0.00002	<0.000003	
b-BHC	<0.000006	0.00100	0.00098	
d-BHC	<0.000009	<0.000009	<0.000009	
Chlordane	<0.000014	<0.000014	<0.000014	
4,4'-DDD	<0.000011	<0.000011	<0.000011	
4,4'-DDE	<0.000004	<0.000004	<0.000004	

recycled paper

RESULTS OF CHEMICAL ANALYSIS OF EXTRACTS FROM EP TOXICITY TESTS (Cont.)

	mg/L			Maximum* Allowable Concentration (mg/L)
E & E Lab Number	2193	2199	2200	
4,4'-DDT	<0.000012	<0.000012	<0.000012	
o, p DDD	<0.000012	<0.000012	<0.000012	
Dieldrin	<0.000002	<0.000002	<0.000002	
Endosulfan I	<0.000014	<0.000014	<0.000014	
Endosulfan II	<0.000004	<0.000004	<0.000004	
Endosulfan sulfate	<0.000066	<0.000066	<0.000066	
Endrin.aldehyde	<0.000023	<0.000023	<0.000023	
Heptachlor	<0.000003	<0.000003	<0.000003	
Heptachlor epoxide	<0.000083	<0.000083	<0.000083	
PCB - 1016	<0.000005	<0.000005	<0.000005	
PCB - 1221	<0.000005	<0.000005	<0.000005	
PCB - 1232	<0.000005	<0.000005	<0.000005	
PCB - 1242	<0.000005	<0.000005	<0.000005	
PCB - 1248	<0.000005	<0.000005	<0.000005	
PCB - 1254	<0.000005	<0.000005	<0.000005	
PCB - 1260	<0.000005	<0.000005	<0.000005	

Analytical References:

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846 Second Edition, U.S. EPA, 1982.

*Federal Registrar Vol. 45 No. 98/Monday, May 19, 1980, Part 261.24 Characteristic of EP Toxicity.

Supervising Analyst Glenn Fahr

Date: 6-12-84

ANALYSIS OF SOIL SAMPLES FOR ORGANO CHLORINE PESTICIDES, PCB'S AND ARSENIC
Results in mg/kg as received

Sample Identification	GF-9150	GF-9148	GF-9151	GF-9152	GF-9153
Lab #84-	2189	2190	2191	2192	2193
Sample Location No.	1	2	3	4	5
Compound					
Aldrin	<0.0002	<0.0002	0.37	<0.0002	0.0002
a-BHC	<0.0002	<0.0002	<0.0002	<0.0002	0.37
b-BHC	0.003	0.07	0.06	3.1	2.1
g-BHC	<0.0002	0.004	0.002	0.98	0.58
d-BHC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlordane	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
4,4'-DDD	<0.0006	0.003	<0.0006	0.50	0.59
4,4'-DDE	<0.0002	0.006	0.45	1.4	0.29
4,4'-DDT	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
o,p-DDD	<0.0006	0.0006	1.68	0.0006	1.28
Dieldrin	<0.0001	0.009	<0.0001	<0.0001	<0.0001
Endosulfan I	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Endosulfan II	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Endosulfan sulfate	<0.003	<0.003	<0.003	<0.003	<0.003
Endrin	<0.0003	0.19	0.81	2.0	0.87
Endrin aldehyde	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Heptachlor epoxide	<0.004	<0.004	<0.004	<0.004	<0.004
Toxaphene	<0.005	<0.005	<0.005	<0.005	<0.005
PCB - 1016	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1221	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1232	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1242	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1248	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1254	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1260	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic	1.00	1.19	1.58	0.87	7.20

< = less than

ANALYSIS OF SOIL SAMPLES FOR ORGANO CHLORINE PESTICIDES, PCB'S AND ARSENIC
Results in mg/kg as received

Sample Identification	GF-9154	GF-9155	GF-9156	GF-9157	GF-9158
Lab #84-	2194	2195	2196	2197	2198
Sample Location No.	6	7	8	9	10
Compound					
Aldrin	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
a-BHC	0.17	<0.0002	<0.0002	<0.0002	0.12
b-BHC	0.94	1.6	0.06	0.01	0.17
g-BHC	0.12	0.036	<0.0002	<0.0002	0.12
d-BHC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlordane	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
4,4'-DDD	0.34	0.99	<0.0006	0.004	<0.0006
4,4'-DDE	0.71	1.29	0.37	0.05	0.41
4,4'-DDT	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
o,p-DDD	1.72	0.76	0.65	<0.0006	1.04
Dieldrin	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Endosulfan I	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Endosulfan II	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Endosulfan sulfate	<0.003	<0.0003	<0.0003	<0.0003	<0.0003
Endrin	0.19	1.46	0.06	0.10	0.48
Endrin aldehyde	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Heptachlor epoxide	<0.004	<0.004	<0.004	<0.004	<0.004
Toxaphene	<0.005	<0.005	<0.005	<0.005	<0.005
PCB - 1016	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1221	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1232	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1242	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1248	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1254	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1260	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic	2.73	3.15	1.78	1.7	1.7

< = less than

ANALYSIS OF SOIL SAMPLES FOR ORGANO
CHLORINE PESTICIDES, PCB'S AND ARSENIC
Results in mg/kg as received

Sample Identification	GF-9159	GF-9160
Lab #84-	2199	2200
Sample Location No.	11	12
Compound		
Aldrin	<0.0002	<0.0002
a-BHC	0.04	<0.0002
b-BHC	1.24	10.2
g-BHC	0.33	2.79
d-BHC	<0.0005	<0.0005
Chlordane	<0.0007	<0.0007
4,4'-DDD	0.16	1.4
4,4'-DDE	0.89	1.7
4,4'-DDT	<0.0006	<0.0006
o,p-DDD	6.79	1.0
Dieldrin	<0.0001	<0.0001
Endosulfan I	<0.0007	<0.0007
Endosulfan II	<0.0002	<0.0002
Endosulfan sulfate	<0.003	<0.003
Endrin	0.48	1.8
Endrin aldehyde	<0.001	<0.001
Heptachlor	<0.0002	<0.0002
Heptachlor epoxide	<0.004	<0.004
Toxaphene	<0.005	<0.005
PCB - 1016	<0.0025	<0.0025
PCB - 1221	<0.0025	<0.0025
PCB - 1232	<0.0025	<0.0025
PCB - 1242	<0.0025	<0.0025
PCB - 1248	<0.0025	<0.0025
PCB - 1254	<0.0025	<0.0025
PCB - 1260	<0.0025	<0.0025
Arsenic	1.33	0.97

< = less than

QUALITY CONTROL FOR PRECISION:
RESULTS OF ANALYSIS OF REPLICATE
ANALYSES OF SOIL SAMPLES

	E & E Laboratory No. 83-	mg/kg Original Analysis A	mg/kg Replicate Analysis B	Relative Percent Difference RPD
B-BHC	2200	10.0	11.0	9.5
-BHC	2200	2.79	2.83	1.4
p,p-DDE	2200	1.7	1.63	4.2
p,p,DDD	2200	1.4	1.36	2.9
Endrin	2200	1.8	1.84	2.2
o,p-DDD	2200	1.0	0.98	2.0

IT CORPORATION

IT FIELD SERVICES

May 23, 1984

Mr. R. L. Timmel
Project Engineer
595 Market St.
San Francisco, CA 94120

Dear Mr. Timmel:

Enclosed is the report concerning the process used by IT Field Services in collecting samples following excavation of pesticide-contaminated soil at the former Chevron Chemical Co. plant site in Monroe, GA. Also included is a sketch of the sampling points and copies of the chain of custody forms.

As always IT Corporation appreciates the opportunity to be of service to Chevron Chemical Co. If you have any questions, please do not hesitate to contact me.

Sincerely,

John W. Ragsdale III
Field Superintendent

JWR/sw

Enclosures

IT CORPORATION

IT FIELD SERVICES

A REPORT OF THE SAMPLING METHODOLOGY
DURING EXCAVATION OF PESTICIDE-CONTAMINATED SOIL
AT A FORMER CHEVRON CHEMICAL COMPANY PLANT SITE
IN MONROE, GEORGIA

MAY 21, 1984

PREPARED FOR:

R. L. TIMMEL
CHEVRON CHEMICAL COMPANY
595 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94120

SAMPLING METHODOLOGY

IT Corporation completed the excavation and transportation of pesticide-contaminated soil for disposal from a former Chevron Chemical Company agricultural chemical formulation plant site, 137 Farmborough St., Monroe, GA. Approximately 1200 cubic yards of pesticide-contaminated soil was transported by IT Corporation's subcontractor, Willms Trucking Company, Inc. to SCA Chemical Services, Inc., Pinewood, S.C. for disposal by land burial. Contamination depth was determined by samples analyzed by Ecology and Environment, Inc. laboratories (E&E). Therefore, depth of excavation was only .5-1.0 foot over most of the site except in front of the two west side loading dock doors, where the excavation depth was extended to 2-2.5 feet. For the most part, the pesticide-contamination was contained in the top soil and did not extend into the impermeable clay sub-soil, hence, the soil in the excavation was removed down to the undisturbed clay beneath.

After excavation of the contaminated soil was complete, composite samples of soil from the excavation floor surface were collected for documentation to determine effectiveness of the cleanup operation. The excavation site was divided into sections numbered 1 through 12 (see Figure 1). In each section, a composite sample was collected and split with Georgia Department of Natural Resources. In sections 1 and 2, samples were collected from five sites in each section and composited into one sample for each section. In sections 3 through 8, samples were collected from nine sites for composites for each section and in sections 9 through 12, samples were collected from 12 sites in each section for composite samples. The thin top surface

of the excavation floor was scraped away before each sample was taken to avoid cross-contamination tracked by the excavation and loading equipment. All samples were collected from the excavation floor approximately 0-2 inches deep at each sample site. Each of the composite samples were collected using a metal trowel washed with detergent, rinsed with distilled water and again with hexane. Each composite sample was placed on an aluminum foil sheet and mixed well, then each was split and placed into 16 oz. pre-cleaned glass containers with screw lids and teflon liners.

Samples collected for Chevron were packed and shipped by Federal Express to Ecology and Environment, Inc. laboratories, Buffalo, NY for analysis prearranged by R. L. Timmel, Chevron Chemical Co. Samples split for the Georgia Department of Natural Resources were received on site by Jeffrey Williams, DNR Environmental Specialist.

In addition to soil samples shipped to E&E for analysis, three quality control samples were included. These samples included field rinse hexane, field rinse distilled water and an empty sample jar for a field travel blank. Strict chain of custody procedures were followed during sampling and shipping of samples. Chain of custody seals were placed on each samples container lid to be broken only upon receipt of samples by E&E. Each seal was signed and dated. Also, chain of custody forms were completed with the original accompanying the samples and copies being retained (see attachments).

After the sampling was completed, two types of backfill were delivered to replace the contaminated soil that was removed and to provide a functional vehicle travel surface for the plant site. First, approximately 500 cubic yds. of a clay with sand backfill was graded and rolled in order to ensure proper drainage and to provide a base for the rest of the backfill material. Next, approximately 1,100 tons of a crusher-run rock material was graded and rolled to complete the backfill process.

IT CORPORATION

SAMPLE CHAIN OF CUSTODY FORM

Date Sample Taken: 5/6/84 Sample Number: GF9148, GF9150 -

Time Sample Taken: 1pm IT Lab Number:

Person Taking Sample: John Ragsdale

Sample Location: 137 East Famborough Street, monroe GA previous chevr
Agri Chemical plant

Reason For Sampling: Contaminated soil Excavation and disposal of so

Other Related Samples (Taken by IT or other organization):

Type of Sample: ☐ Liquid ☐ Gas ☐ Sludge ☑ Other (specify): soil

Container Size: 16 oz Container Type: Glass

Quantity of Sample Taken: 1 16oz jar

Person whom results, original of this form and remaining sample should be return

SAMPLE TRANSFER

1	Relinquished by:	John W Ragsdale	IT Corp	5/7/84 11
		(Name)	(Organization)	(Date/Tim
	Received by:	[illegible] Williams	GA DNR	5/7/84 11
		(Name)	(Organization)	(Date/Tim
2	Relinquished by:			
		(Name)	(Organization)	(Date/Tim
	Received by:			
		(Name)	(Organization)	(Date/Tim
3	Relinquished by:			
		(Name)	(Organization)	(Date/Tim
	Received by:			
		(Name)	(Organization)	(Date/Tim

Proj. No.	Project Name: Chevron Chemical Co Monroe LA					NO. OF CONTAINERS	REMARKS
SAMPLERS: (Signature) John W Ragsdale III							
Each STA. NO.	DATE	TIME	COMP	GRAB	Sample of STATION LOCATION		
1	5/6/84		X		~~GF 9148~~ GF 9150	1	
2	5/6/84		X		GF 9148	1	
3	5/6/84		X		GF 9151	1	
4	5/6/84		X		GF 9152	1	
5	5/6/84		X		GF 9153	1	
6	5/6/84		X		GF 9154	1	
7	5/6/84		X		GF 9155	1	
8	5/6/84		X		GF 9156	1	
9	5/6/84		X		GF 9157	1	
10	5/4/84		X		GF 9158	1	
11	5/6/84		X		GF 9159	1	
12	5/4/84		X		GF 9160	1	
	5/8/84			X	GF 9148		Field Hexane
	5/6/84			X	GF 9161		Field Blank Empty
	5/6/84			X	GF 9162		½ Gallon Field DI H2O

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
John W Ragsdale III	5/7/84 4p				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	

35

IT CORPORATION

May 15, 1984

Mr. R. L. Timmel
Project Engineer
Chevron Chemical Co.
595 Market Street
San Francisco, CA 94120

Dear Mr. Timmel:

Enclosed are the results of the air monitoring conducted at Childscapes, Monroe, GA on May 1, 1984. Both area and personnel air monitoring was conducted by collecting the potentially contaminated air onto 0.8 micron mixed cellulose ester fiber (MCE) filters at a flow rate of approximately 1.50 liters per minute (lpm) using select personnel sampling pumps (MSA and DuPont).

Sampling was performed in accordance with NIOSH Sampling Data Sheet #S309 and 29 CFR 1910.1018.

Personnel and area monitoring was conducted inside the warehouse during the vacuum cleaning decontamination operations. For results see Table 1. Workers wore disposable coveralls and "3-M Airhat" powered air purifying respirators (PAPR).

Air monitoring (personnel and area) was also conducted at various points around the worksite. See Table 1 for results.

Samples were sent to Environmental Health Laboratory (Hartford, CT) and analyzed using NIOSH P&CAM #139 (See attached lab results, Table 2).

I would like to thank you for the use of the MSA sampling pumps used during this project. If you have any questions please contact me.

Very truly yours,

Corey W. Briggs

Corey W. Briggs
Health and Safety Coordinator

jn

Enclosure

Location	Pump #	Sample #	Start	Finish	Time (Min)	Rate (lpm)	Volume (liters)	Result (mg)	Result ($\mu g/m^3$)	(8 hr TWA) $\mu g/m^3$
Middle of Warehouse Approx. 4 ft. off floor*	MSA M-17	15291	0835	1502	387	1.49	577	ND <0.0005	0.87	0.70
Personnel** (Vacuuming)	MSA M-31	18457	0833	1602	420	1.50	630	0.023	36.5	31.9
Blank*	N/A	17715	N/A	N/A	N/A	N/A	N/A	ND <0.0005	NA	NA
Rear of support truck downwind from decon	6284	18363	1200	1753	353	1.52	537	ND <0.0005	0.93	0.68
Area rear of bldg. platform at Hotline approx. 5 ft. off ground	DuPont 6297	18326	0750	1450	420	1.50	630	ND <0.0005	0.80	0.70
Rear of site adjacent to railraod tracks downwind	MSA M-10	15289	1518	1744	146	1.51	221	ND <0.0005	2.26	0.68
Personnel Laborer	DuPont 5039	18366	0742	1430	408	1.51	617	ND <0.0005	0.81	0.69

*Samples taken in warehouse during vacuum cleaning operations
**Worst case sample. Worker was vacuuming essentially in a confined space situation near the roof.

TABLE 2

ENVIRONMENTAL HEALTH LABORATORY
94 Murphy Rd. • Hartford, CT 06114
(800) 243-4903 • IN CT (203) 522-3814
LABORATORIES IN MACON, GA. AND HARTFORD, CT.

No. H84E012

LABORATORY ANALYSIS REPORT

SAMPLE CONTAINER NO.	ANALYZED FOR	METHOD OF ANALYSIS	ANALYTICAL RESULTS	
	Arsenic	*Hydride Generation AA	mg	
18363	"	"	ND <0.0005	• 93 ug/m³ =
18326	"	"	ND <0.0005	• 86 ug/m³ =
Blank 17715	"	"	ND <0.0005	—
15291	"	"	ND <0.0005	• 87 ug/m³ =
18457	"	"	0.023	36.5 ug/m³ =
15289	"	"	ND <0.0005	2.26 ug/m³
18366	"	"	ND <0.0005	• 81 ug/m³ =

SPECIAL REMARKS:

ND = none detected
< = less than
*Modified NIOSH P&CAM #139

CHEMIST Joanne Sullivan DATE May 3, 1984
(Signature)

APPENDIX C

REFERENCES

1. Cressler, C.W., Thurmond, C.J., Hester, W.G., 1983, Groundwater in the Greater Atlanta Region: U.S. Geologic Survey Information Circular 63, p. 144.

2. Thomson, M.T., Herrick, S.M., Brown, Eugene, 1956, The Availability and Use of Water in Georgia; Georgia Geologic Survey Bulletin 65.

3. Odom, Ron R., McCollum, Neville, Mary Anne and Ettman, David R., 1977, Georgia's protected wildlife: Georgia Dept. of Nat. Resources.

4. McCollum, Jerry L., and Ettman, David R., 1977, Georgia's protected plants: Georgia Dept. of Nat. Resources.

5. Wharton, Charles H., 1978, The natural environments of Georgia: Georgia Dept. of Nat. Resources.

6. Soil Survey of Walton County, Georgia: U.S. Dept. of Agriculture, Soil Conservation Service, 1961.

7. Hawley, Gessner G., 1981, The condensed chemical dictionary: Van Nostrand Reinhold Co., New York, N.Y.

8. Sax, N. Irving, 1979, Dangerous properties of industrial materials: Fifth edition, Van Nostrand Reinhold Company.

9. Ecology and Environment Inc., 1984, An evaluation of the distribution of pesticide compounds in the soils surrounding a former Georgia agrichemical warehouse.

10. Stokes, W.R. III, Hale, T.W. Pearman, J.L. and Buel, G.R., 1983, Water resources data, Georgia, water year 1982: U.S. Geologic Survey Water Data Report GA-82-1.

APPENDIX D

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Arnold H.M. Co.	137 East Fambrough Street				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Monroe	GA	30655	Walton	147	10

09 COORDINATES LATITUDE N33° 46' 57"6 | LONGITUDE W83° 42' 19".7

10 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
5 / 1 / 84 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1952 (BEGINNING YEAR) 1969 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☒ E. STATE ☐ F. STATE CONTRACTOR GA EPD (Name of firm) ☒ G. OTHER I.T. Corporation (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Jeffrey M. Williams	Envrionmental Specialist	GA EPD	(404)656-7404
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Claude W. Goodley	Environmental Specialist	GA EPD	(404)656-2836
John W. Ragsdale III	Environmental Specialist	I.T. Corp.	(615)690-3211
Mike Allred	Environmental Specialist	GA EPD	(404)656-7404
Thomas M. Westbrook	Environmental Specialist	GA EPD	(404)656-7404
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Robert L. Timmel	Project Engin.	595 Market Street	(415) 894-0636
Chevron Chemical Co.		San Francisco, CA	( )
		94120-7145	( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	1000 hrs	Clear, warm and windy

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Robert L. Timmel	Chevron Chemical Company	(415)894-0636

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Jeffrey M. Williams	GA DNR	GA EPD	656-7404	5 / 1 / 84 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☒ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS
- ☒ D. OTHER dust (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS
- CUBIC YARDS 1200 (soil)
- NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☒ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	1200	yd^3	Pesticide residues removed from
OCC	OTHER ORGANIC CHEMICALS			the site by excavation of 9 to
IOC	INORGANIC CHEMICALS			12 in. of surface soil.
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
PSD	DDT	50-29-3	Waste Spill	see App. B	
PSD	DDE	999	" "	"	
PSD	Lindane	58-89-9	" "	"	
PSD	Dieldrin	60-57-1	" "	"	
PSD	Aldrin	309-00-2	" "	"	
PSD	DDD	72-54-8	" "	"	
PSD	Endrin	72-20-8	" "	"	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Arsenic	7440-38-2	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Robert L. Timmel - Project Engineer - Chevron Chemical Co.
Ecology and Envrionment Inc. -"Evaluation Report of the Distribution Pesticide Compounds in the Soils Surrounding a Former Georgia Agrichemical Warehouse." (February 1983)
State - GA EPD Lab analyses and E & E Lab analyses.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 2 (Acres) 04 NARRATIVE DESCRIPTION

Low level contamination of soils that contain residues of chlorinated pesticides.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☒ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 25 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/Runoff/Standing liquids, Leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 0

IV. COMMENTS

No known potential hazardpresently exist at the site.

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Ecology and Environment Inc. - February 1983 - Report
Robert L. Timmel - Chevron Chemical Company
GA. EPD Files - H.M. Arnold Co.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP	1200	yd^3
☒ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☒ H. OTHER (Specify) Excavation of soils at the site

05 OTHER

- ☐ A. BUILDINGS ON SITE

Warehouse

06 AREA OF SITE

2 (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☒ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Pesticide residues have been contained and removed from the surface soils at the site.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

All waste materials have been removed from the site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Robert L. Timmel - Chevron Chemical Company
Ecology & Envrionment Inc. - February 1983 Report
Site Inspection by Jeffrey M. Williams - 5/1/84/ - GA EPD.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☒	B. ☐
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

	ENDANGERED	AFFECTED	MONITORED
	A. ☐	B. ☐	C. ☐
	D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. 3 miles (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☒ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER none

03 DISTANCE TO NEAREST DRINKING WATER WELL 3 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
798 (ft)	unknown	170 (ft)	30 g/min (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

Most wells inthe Walton County area are not used for drinking water purposes. The private wells in Walton County are located in rural areas away from the subject site.

10 RECHARGE AREA		11 DISCHARGE AREA	
☒ YES ☐ NO	COMMENTS: Area is located in the Piedmont province of the state	☐ YES ☐ NO	COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Grubby Creek	☐	2 (mi)
Hard Labor Creek	☐	3 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 1000 NO. OF PERSONS	B. 3000 NO. OF PERSONS	C. 6000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

< 1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

75

04 DISTANCE TO NEAREST OFF-SITE BUILDING

< 1 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Site is located within the city limits and all residents have municipal water supplies from the Alcovy River.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☒ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
3-30 (ft)	2 (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
44-59 (in)	(in)	2-6 %	Southwest	2-6 %

09 FLOOD POTENTIAL: SITE IS IN N/A YEAR FLOODPLAIN

10 ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE: A. _____ (mi)

OTHER: B. _____ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

_____ (mi)

ENDANGERED SPECIES: _____

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 3 (mi)	B. .1 (mi)	C. _____ (mi)	D. 4 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The Monroe area is located within the Piedmont Province of the State. Bedrock in the area consists of igneous and metaporphic rocks, specifically biotitic gneiss, mica schist and amphibolite rock types.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc.
February 2, 1984 - Report section 4-1

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	Four	Georgia Dept. of Nat. Resources- State Lab	
VEGETATION		Analysis	
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Soil samples	Four off site surface soil samples
Dust samples	Five bulk dust samples inside the warehouse bldg.
Airborne Particulate	Four ambient airborne particulate samples inside the bldg.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL U.S.G.S.

02 IN CUSTODY OF Jeffrey M. Williams GA EPD
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS
U.S.G.S. 7-5 minute quadrangle of (Monroe, GA) (Between, GA)

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environmental, Inc. - Letter April 13, 1984
GA EPD Lab Analysis - June 14, 1984

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. CURRENT OWNER(S)

01 NAME	02 D+B NUMBER
Harry M. Arnold	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
217 Jackson Street	
05 CITY / 06 STATE / 07 ZIP CODE	
Monroe, GA 30655	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	

PARENT COMPANY (If applicable)

08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY / 13 STATE / 14 ZIP CODE	
08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY / 13 STATE / 14 ZIP CODE	
08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY / 13 STATE / 14 ZIP CODE	
08 NAME	09 D+B NUMBER
10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE
12 CITY / 13 STATE / 14 ZIP CODE	

III. PREVIOUS OWNER(S) (List most recent first)

01 NAME	02 D+B NUMBER
(same as above)	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	

IV. REALTY OWNER(S) (If applicable; list most recent first)

01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	
01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE / 07 ZIP CODE	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980566831

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Childscapes, Inc.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
137 East Fambrough St.	

05 CITY	06 STATE	07 ZIP CODE
Monroe	GA	30655

08 YEARS OF OPERATION	09 NAME OF OWNER
	Gene Pietso

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Chevron Chemical Co.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
595 Market Street	

05 CITY	06 STATE	07 ZIP CODE
San Francisco	CA	94120-7145

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
14	Harry M. Arnold

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE / 07 ZIP CODE	

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ S. CAPPING/COVERING 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ T. BULK TANKAGE REPAIRED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ U. GROUT CURTAIN CONSTRUCTED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ V. BOTTOM SEALED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ W. GAS CONTROL 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ X. FIRE CONTROL 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ Y. LEACHATE TREATMENT 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☒ Z. AREA EVACUATED 04 DESCRIPTION Aprox. 1200 yd³ of soil	02 DATE 5-10-84	03 AGENCY I.T. Corp
01 ☐ 1. ACCESS TO SITE RESTRICTED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ 2. POPULATION RELOCATED 04 DESCRIPTION	02 DATE	03 AGENCY
01 ☐ 3. OTHER REMEDIAL ACTIVITIES 04 DESCRIPTION	02 DATE	03 AGENCY

RCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

November 11, 1984 reported by 103c Notification.

December 1983 - Chevron Chemical Co. contracts with Ecolgy and Environment to assess contamination at site.

February 1984 - Chevron Chemical Co. and GA EPD officials discuss a voluntary cleanup of Chevron's Former Agrichemical Plant.

May 10, 1984 - All remedial action has been performed and approved by GA EPD personnel.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Arnold (H M) Co.	137 East Fambrough Street				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Monroe	GA	30655	Walton	147	10

09 COORDINATES LATITUDE	LONGITUDE
N 33° 46' 57".6	W 83°42'19".7

10 DIRECTIONS TO SITE (Starting from nearest public road): Take I-20 East to Social Circle, Monroe Exit - Hwy. 11. Take Hwy. 11 thru Social Circle to Monroe. Take right at East Fambrough St. and go ½ mi. White building on the left is site location.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
Harry M. Arnold	217 Jackson Street			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
Monroe	GA	30655	404)267-2285	
07 OPERATOR (If known and different from owner)	**08 STREET (Business, mailing, residential)**			
Chevron Chemical Company	595 Market Street			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	
San Francisco	CA	94120-7145	415)894-0636	

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☒ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: 6/9/81 (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☐ YES ☒ NO DATE ___/___/___ (MONTH DAY YEAR)

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1952 (BEGINNING YEAR) 1969 (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Chlorinated pesticides consisting of DDT, DDD, Lindane, Endrin, Aldrin, Dieldrin, and DDD.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Possible contamination of soils and groundwater due to the persistence and migration of these specific compounds. Possible worker exposure to airborne dust contaminants within the building.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
Robert L. Timmel	Chevron Chemical Company		415)894-0636
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Jeffrey M. Williams	DNR	GA E.P.D.	404)656-7404	4/30/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: unknown
02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

Possible migration of pesticides off site by surface water infiltration into the groundwater

01 [X] B. SURFACE WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

Possible contamination of Northern culvert at site by surface water runoff that may contain pesticide residues.

01 [ ] C. CONTAMINATION OF AIR
03 POPULATION POTENTIALLY AFFECTED: _____
02 [ ] OBSERVED (DATE: _____) [ ] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS
03 POPULATION POTENTIALLY AFFECTED: _____
02 [ ] OBSERVED (DATE: _____) [ ] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT
03 POPULATION POTENTIALLY AFFECTED: _____
02 [ ] OBSERVED (DATE: _____) [ ] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL
03 AREA POTENTIALLY AFFECTED: 2 (Acres)
02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

01 [ ] G. DRINKING WATER CONTAMINATION
03 POPULATION POTENTIALLY AFFECTED: _____
02 [ ] OBSERVED (DATE: _____) [ ] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

01 [X] H. WORKER EXPOSURE/INJURY
03 WORKERS POTENTIALLY AFFECTED: 15-20
02 [ ] OBSERVED (DATE: _____) [X] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

Possible airborne particulates within the warehouse building on the site that could result in onsite exposure of workers to toxic materials.

01 [ ] I. POPULATION EXPOSURE/INJURY
03 POPULATION POTENTIALLY AFFECTED: _____
02 [ ] OBSERVED (DATE: _____) [ ] POTENTIAL [ ] ALLEGED
04 NARRATIVE DESCRIPTION

Attachment A

Site Disposition

The subject site was assessed as a medium priority for inspection based on the following conclusions:

The contaminants involved are characteristically toxic and persistent within the environment. The chlorinated pesticides involved are virtually insoluble in water and are non-biodegradable within the soils they have contaminated. The marketing warehouse onsite is believed to be contaminated from past practices of this former agrichemical plant. Possible worker exposure inside the warehouse warrants my decision for a medium priority inspection.

JMW:bhr

EPA Notification of Hazardous Waste Site

United States
Environmental Protection
Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

810609

GAS000000175

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Chevron Chemical Co

Street: PO Box 3883

City: SF State: CA Zip Code: 94119

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: H M Arnold Co.

Street: Fambrough St.

GAD980556831

City: Monroe County: State: GA Zip Code: 30655

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Bishop KC PM

Phone: 415 894 9076

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year) To (Year)

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☒ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____
_____
_____

Source of Waste:
Place an X in the appropriate boxes.

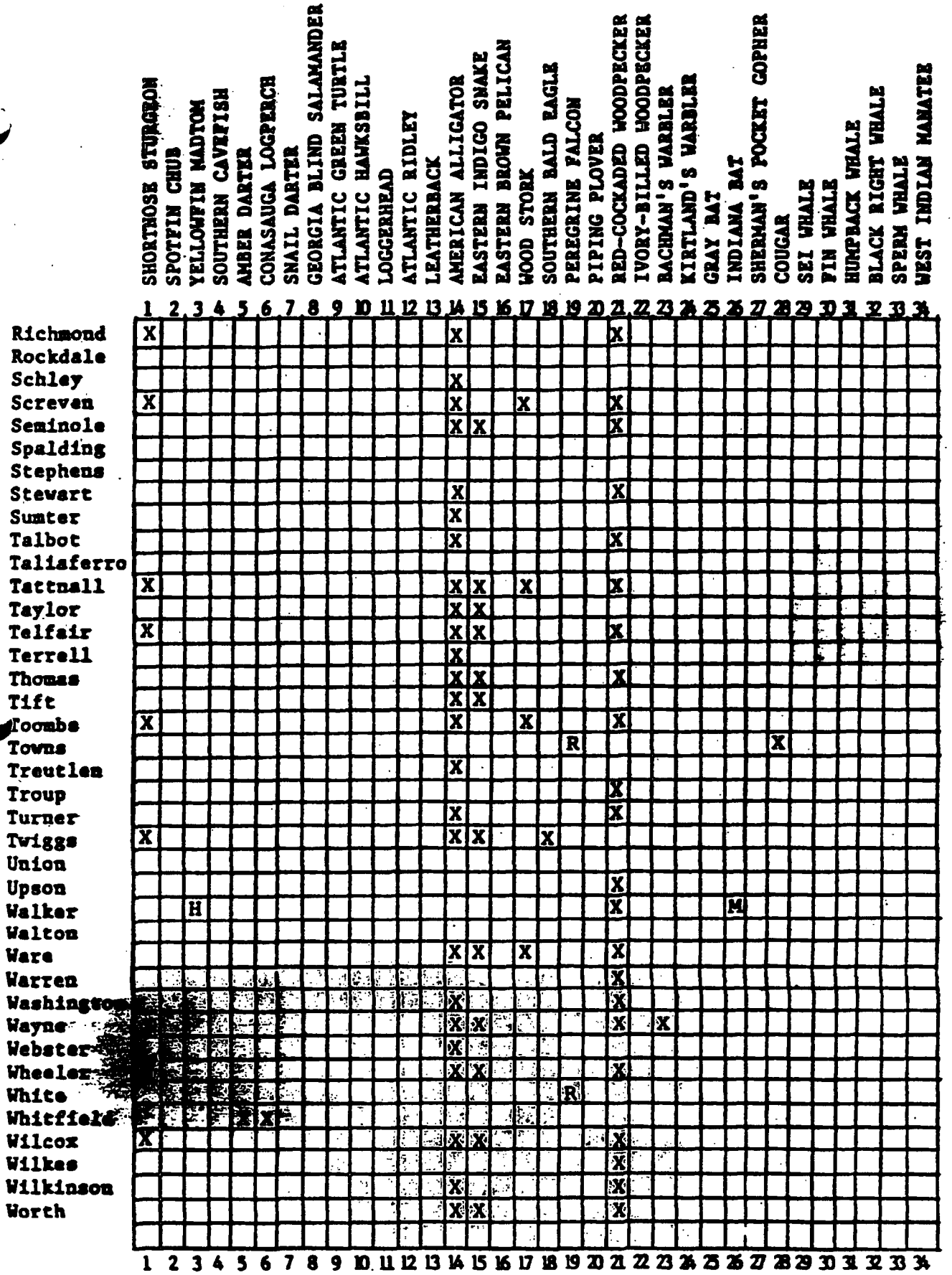
1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☒ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____
_____
_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138



X=General occurrence, see appendix; O=Occurs in offshore waters only; W=Winter occurrence only; S=Summer occurrence only; M=Occurs irregularly as a migrant; R=Release or potential release site; H=Historical occurrence

Protected Plants of Georgia

AN INFORMATION MANUAL ON PLANTS DESIGNATED BY THE STATE OF GEORGIA AS ENDANGERED, THREATENED, RARE, OR UNUSUAL

Thomas S. Patrick
James R. Allison
Gregory A. Krakow

1995

Georgia Department of Natural Resources
Lonice C. Barrett, Commissioner
Wildlife Resources Division
David Waller, Director
Georgia Natural Heritage Program
John R. Bozeman, Program Manager

Potentilla tridentata
Sarracenia oreophila

Treutlen
Penstemon dissectus
Sarracenia flava

Troup
Cypripedium calceolus
Sarracenia oreophila ?
Schisandra glabra

Turner
Balduina atropurpurea
Elliottia racemosa
Penstemon dissectus
Sarracenia flava
Sarracenia minor
Sarracenia psittacina

Twiggs
(No records)

Union
Carex manhartii
Carex purpurifera
Cypripedium acaule
Cypripedium calceolus
Gentianopsis crinita
Hydrastis canadensis
Isotria medeoloides
Potentilla tridentata
Trientalis borealis

Upson
Cypripedium calceolus
Hymenocallis coronaria
Silene polypetala
Stewartia malacodendron
Trillium reliquum
Waldsteinia lobata

Walker
Carex purpurifera
Cypripedium acaule
Cypripedium calceolus
Hydrastis canadensis
Jeffersonia diphylla
Leavenworthia exigua
Lysimachia fraseri
Neviusia alabamensis
Sabatia capitata
Scutellaria montana
Spiraea virginiana
Veratrum woodii
Viburnum bracteatum

Walton
Allium speculae
Amphianthus pusillus
Draba aprica
Sedum pusillum

Ware
Hartwrightia floridana
Sarracenia flava
Sarracenia minor
Sarracenia psittacina

Warren
Sedum pusillum

Washington
Cuscuta harperi
Marshallia ramosa
Schisandra glabra

Wayne
Balduina atropurpurea
Baptisia arachnifera
Fothergilla gardenii
Matelea alabamensis
Sarracenia flava
Sarracenia minor

Webster
Hexastylis shuttleworthii var. *harperi*

Wheeler
Ceratiola ericoides
Elliottia racemosa
Lindera melissifolia
Litsea aestivalis
Marshallia ramosa
Nestronia umbellula
Penstemon dissectus
Sarracenia flava
Sarracenia minor
Sarracenia psittacina
Sarracenia rubra

White
Carex manhartii
Cypripedium acaule
Cypripedium calceolus

Whitfield
Cypripedium acaule
Cypripedium calceolus
Sabatia capitata
Xyris tennesseensis

Wilcox
Sarracenia flava
Sarracenia minor
Sarracenia psittacina

Wilkes
Cypripedium acaule
Draba aprica
Hymenocallis coronaria
Nestronia umbellula
Quercus oglethorpensis
Sedum pusillum

Wilkinson
Hexastylis shuttleworthii var. *harperi ?*
Stewartia malacodendron

Worth
Balduina atropurpurea
Marshallia ramosa
Penstemon dissectus
Sarracenia flava
Sarracenia minor
Sarracenia psittacina
Schwalbea americana
Thalictrum cooleyi

Updates and further information may be obtained from:

Georgia Department of Natural Resources
Wildlife Resources Division
Georgia Natural Heritage Program
2117 U.S. Hwy. 278 SE
Social Circle, Georgia 30279

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from J.H. Williams,
GA E'D concerning
HM Arnold

AN EVALUATION OF THE DISTRIBUTION OF PESTICIDE COMPOUNDS IN THE SOILS SURROUNDING A FORMER GEORGIA AGRICHEMICAL WAREHOUSE

February 2, 1984

Prepared for:

CHEVRON CHEMICAL COMPANY
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International Specialists in the Environmental Sciences

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1. INTRODUCTION

Ecology and Environment, Inc., (E & E) was retained by the Chevron Chemical Company (Chevron) to define the extent and concentrations of pesticide residues remaining in the soils surrounding a former Chevron agrichemical marketing warehouse at 137 East Fambrough Street in Monroe, Georgia. The site was leased by Chevron from approximately 1952 to 1969 from the current property owner H.M. Arnold. The site is presently occupied by a tenant, Childscapes, Inc.

In addition, E & E was to evaluate the potential for migration of any pesticide compounds at the site into the groundwater beneath the site and nearby water supply wells.

This report describes the investigation conducted by E & E. Following this introduction, Section 2 discusses the field sampling rationale and methodology. Section 3 presents the results of data analysis. Section 4 discusses site hydrology and Section 5 presents the summary and conclusions.

2. FIELD SAMPLING METHODOLOGY

During the week of December 12, 1984, E & E personnel conducted an on-site soil sampling program. First, a topographic survey of the site was undertaken to define those parts of the site that may have received pesticide residues as sediment from eroded surface soils. The site map on Figure 2-1 shows the results of this survey. Surface water on the northern half of the site drains to the northeast corner, from which it drains off-site through a culvert underneath the Georgia Railroad track. The southern half of the site drains eastward to another culvert beneath the tracks, located just south of the warehouse building.

During the life of the facility, containerized pesticides were occasionally stored in the back yard area north of the building. Prior to undertaking the sampling program, it was anticipated that this area might be more susceptible to pesticide contamination than the front yard employee parking area, south of the building. In addition, it was anticipated that occasional sweeping of the building's floors during the life of the facility might have resulted in some pesticide residues being swept out the building's loading doors.

Figure 2-1 shows the locations selected for soil sampling based on the topographic survey and knowledge of previous site operations. The basis of the sample locations was a grid system. The number of each location represents the order in which the locations were sampled.

Samples were obtained from each location at the surface, one-foot, and two-foot depths. In all accessible areas, this was done

with a truck-mounted, solid stem auger drilling rig. The augers were slowly screwed into the soil, and then withdrawn, so as to obtain a relatively undisturbed, depth-discrete plug of soil at each location. In inaccessible areas, such as next to the building or in the ditch along the railroad tracks, a hand, SCS-type bucket auger was used. Samples were placed in eight-ounce glass jars and shipped, using standard chain-of-custody procedures, to E & E's Analytical Services Center (ASC) in Buffalo, New York, for analysis.

To prevent sample cross-contamination, care was taken to decontaminate the solid-stem auger and hand auger after each use. Decontamination consisted of a wash with trisodium phosphate detergent and a water rinse. The stainless steel trowel used to take samples off the auger was cleaned in a similar manner after each use.

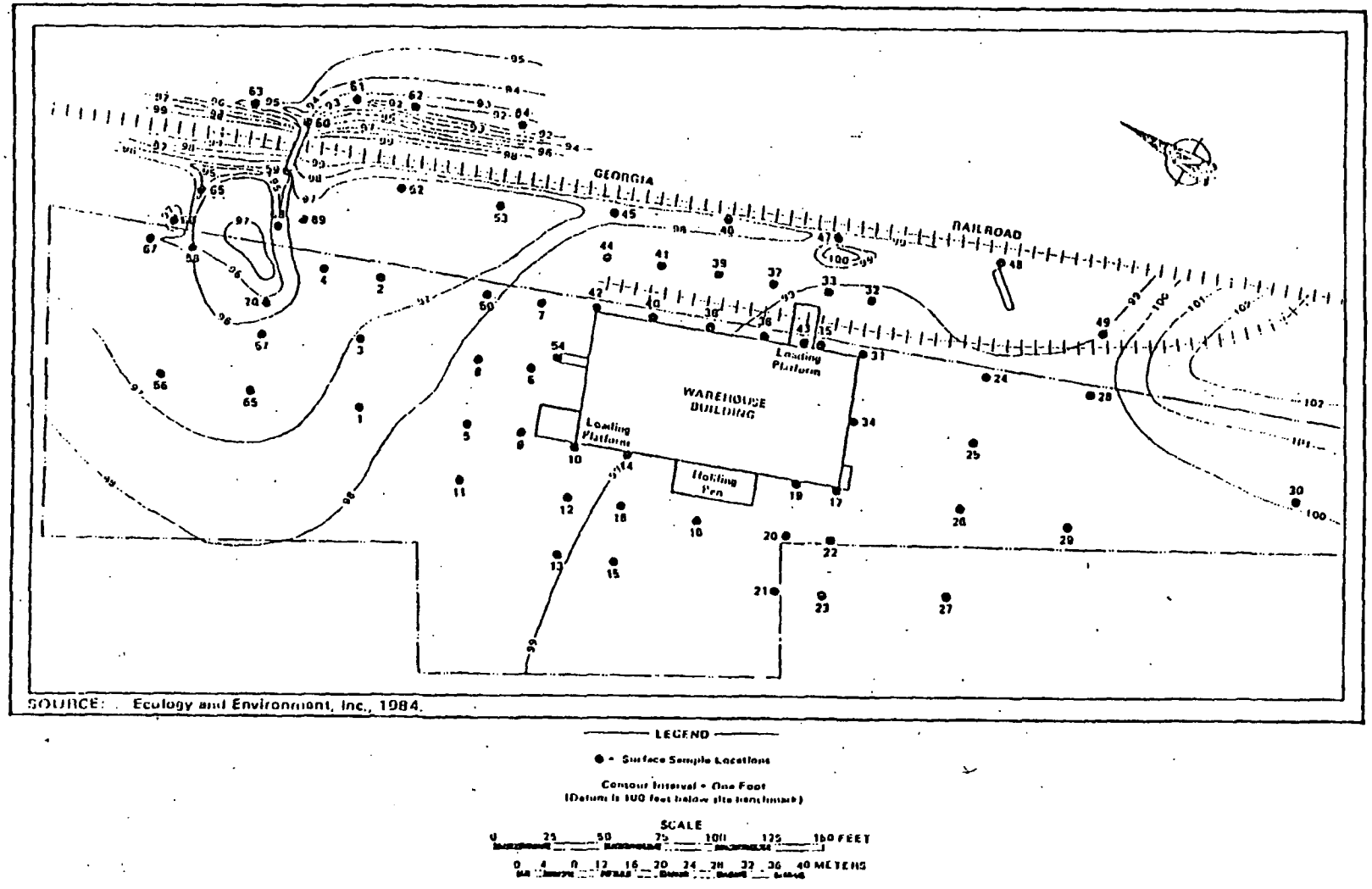

Figure 2–1 SITE TOPOGRAPHY AND SOIL SAMPLING LOCATIONS

3. FIELD DATA ANALYSIS

Figure 3-1 illustrates the sample analysis scheme used by E & E's ASC to analyze the soil samples for organic pesticides and arsenic. Composites were made up, as indicated on the figure, in broad areas which had exhibited no visible signs of contamination as well as in areas which, operationally, should not have been susceptible to contamination.

In the case of the sampling stations that were analyzed individually, the following protocol was generally used to determine whether or not the deeper samples were to be analyzed:

- Surface sample analyzed.
- One-foot samples analyzed if surface sample concentration was greater than 50 milligrams per kilogram (mg/kg).
- Two-foot sample analyzed if one-foot sample concentration was greater than 50 mg/kg.

The concentration level was based upon the sum of all the organic pesticide concentrations.

The data thus developed are presented in Table 3-1. Total organic pesticide concentrations at the surface and one-foot levels are presented on Figures 3-2 and 3-3, respectively. Arsenic concentrations are presented on Figure 3-4.

Pesticide concentrations generally appeared to be highest near the warehouse loading doors (soil sample locations 14, 19, 40, and 43) and in areas downslope of the suspected source areas. Soil samples south and west of the warehouse had relatively low concentrations of pesticides, with the exception of those near the loading doors. Soil samples to the north and east of the warehouse were often found to contain high concentrations of pesticides. In general, there was a good correlation between these results and the site drainage patterns.

The relatively high concentrations of pesticides extending toward and at sample location 58 were probably derived from a nearby mound of excavated soil where sample 66 was obtained. Sample 66 was found to contain a total organic pesticide concentration of 2,400 parts per million (ppm). Rainwater runoff presumably transported soil from the mound into the ditch at sample location 58.

Sample 59 exhibited a relatively high pesticide concentration since it is the lowest point of drainage west of the railroad tracks. The culvert adjacent to sample 59 only appeared to transport a small amount of pesticides to the eastern ditch along the railroad tracks, as indicated by the relatively low concentrations of pesticides found in samples 60 through 64.

The major sources of arsenic on the site appeared to be the soil beneath the north loading doors on the east and west walls of the warehouse. Arsenic migration also tended to follow the site drainage patterns. Concentrations of arsenic were found in the soil excavation mound at sample 66 and in the ditch east of the railroad tracks in samples 60 through 64.

The soils at the site seem to exhibit a strong adsorptive capacity, typical of soils containing clays. With two exceptions, sample locations 14 and 19, the concentrations present in the one-foot samples are, on the average, approximately two orders of magnitude less than in the overlying surface samples.

In order to better evaluate the potential for contaminated soils to release pesticides into solution via surface water runoff from the site, E & E's ASC used the United States Environmental Protection Agency (EPA) EP-Toxicity Test Extraction Procedure (Appendix II to 40 CFR Part 251) to obtain an extract from four of the surface soil samples collected on-site. Of the four samples selected, three (41-S,

45-S, and 59-S) were collected on-site in locations having relatively high contamination; one sample (64-S) was collected off-site in the drainage ditch downstream of the north culvert.

The ASC analyzed the extracts obtained from these samples using the same procedures used in developing the data shown in Table 3-1. The results thus obtained are shown in Table 3-2. Comparison of the data presented in Table 3-1 and Table 3-2 shows good correlation in terms of relative pesticide concentrations. That is, in both cases, the highest total concentrations found were for sample 45-S and the lowest for sample 64-S.

The major difference between the data presented in Tables 3-1 and 3-2 is in the absolute concentration levels. The levels reported in Table 3-2 are lower by at least a factor of 18,000 than those reported in Table 3-1. In terms of EP Toxicity, all of the concentrations reported on Table 3-2 are at least one order of magnitude less than the maximum allowable concentrations listed in 40 CFR Part 265.

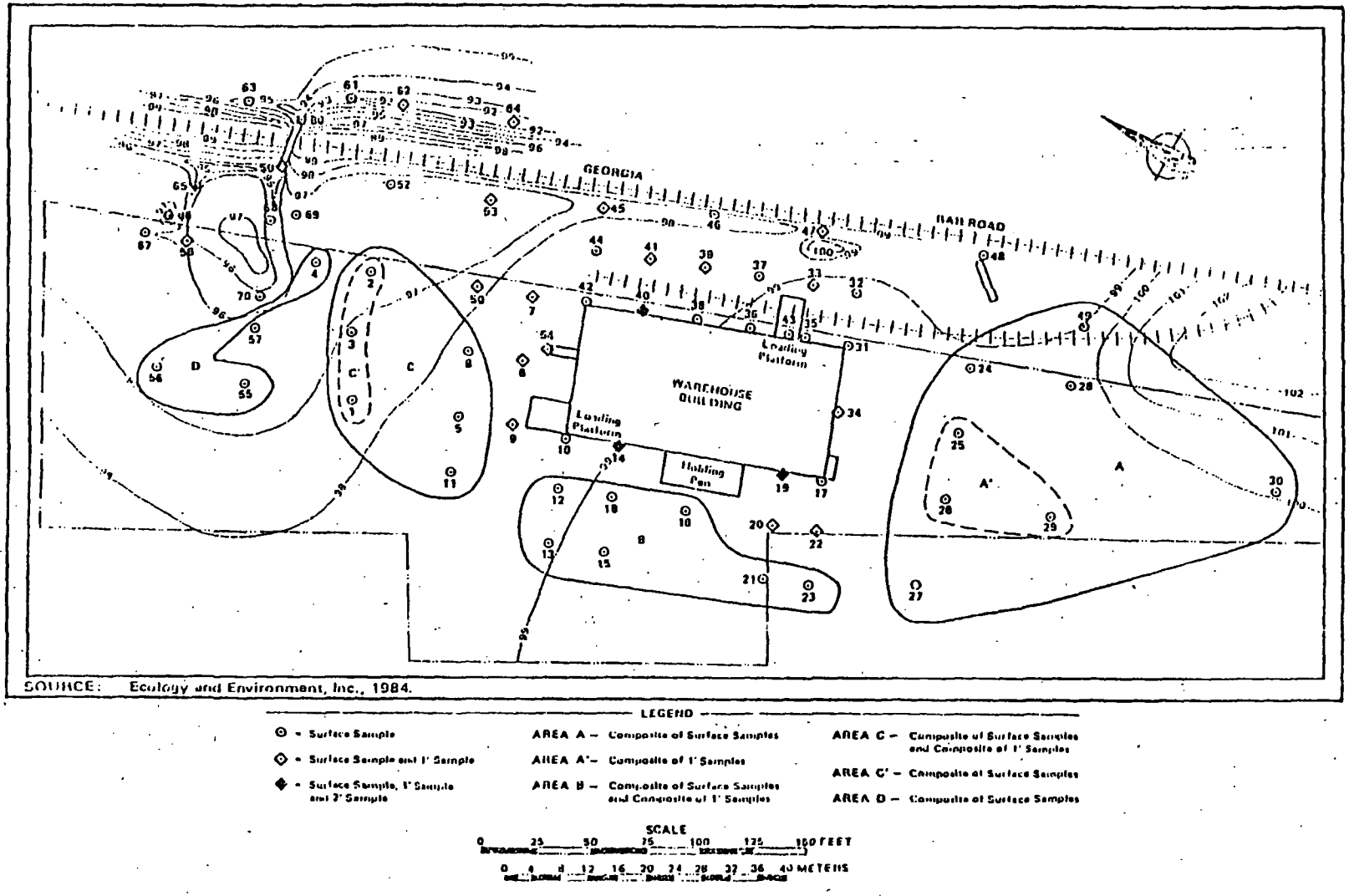

Figure 3–1 ANALYTICAL SCHEME USED TO EVALUATE SOIL SAMPLES

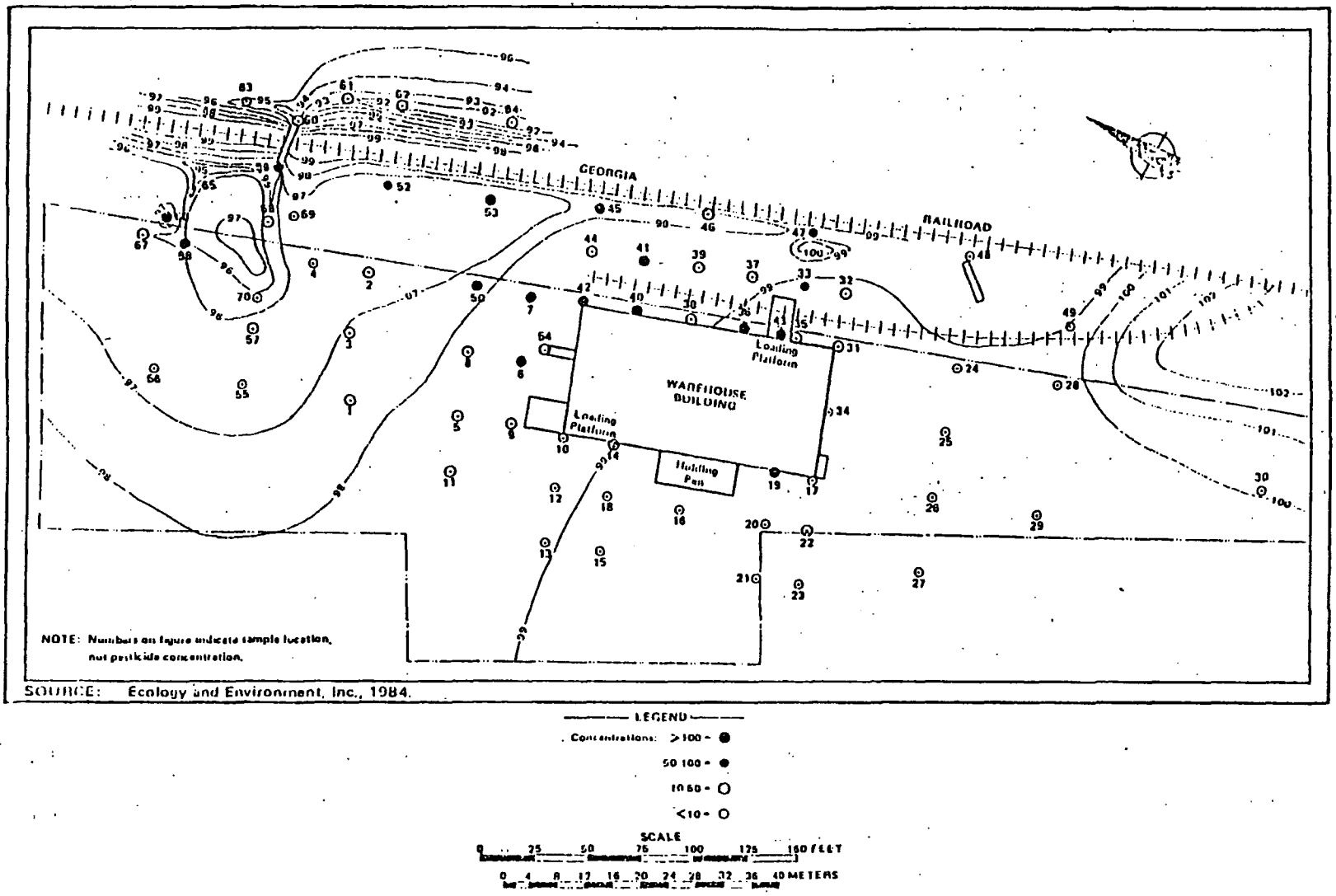

Figure 3–2 TOTAL ORGANIC PESTICIDE CONCENTRATIONS IN SURFACE SOIL SAMPLES IN mg/kg (ppm)

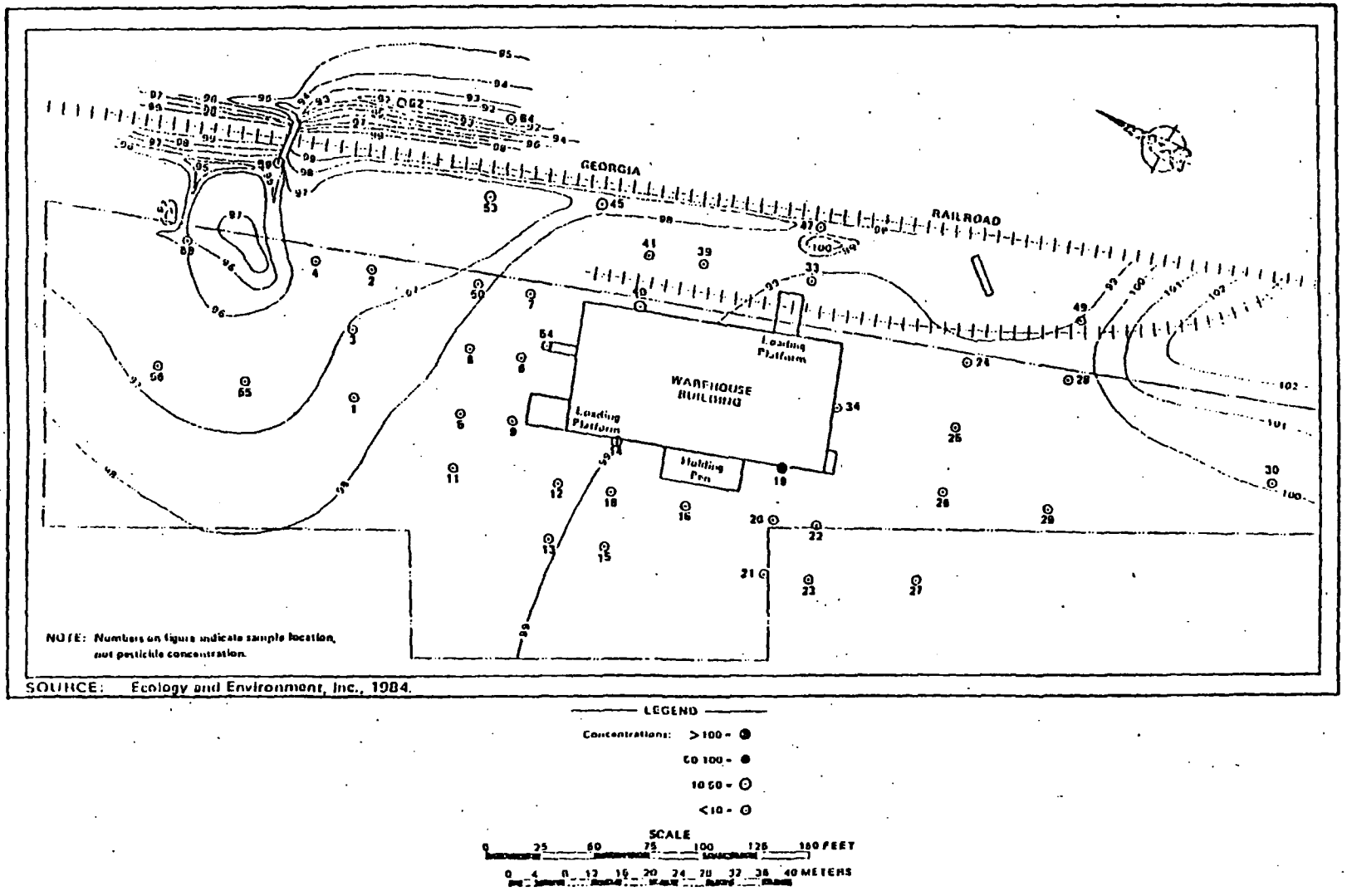

Figure 3–3 TOTAL ORGANIC PESTICIDE CONCENTRATIONS IN ONE-FOOT SOIL SAMPLES IN mg/kg (ppm)

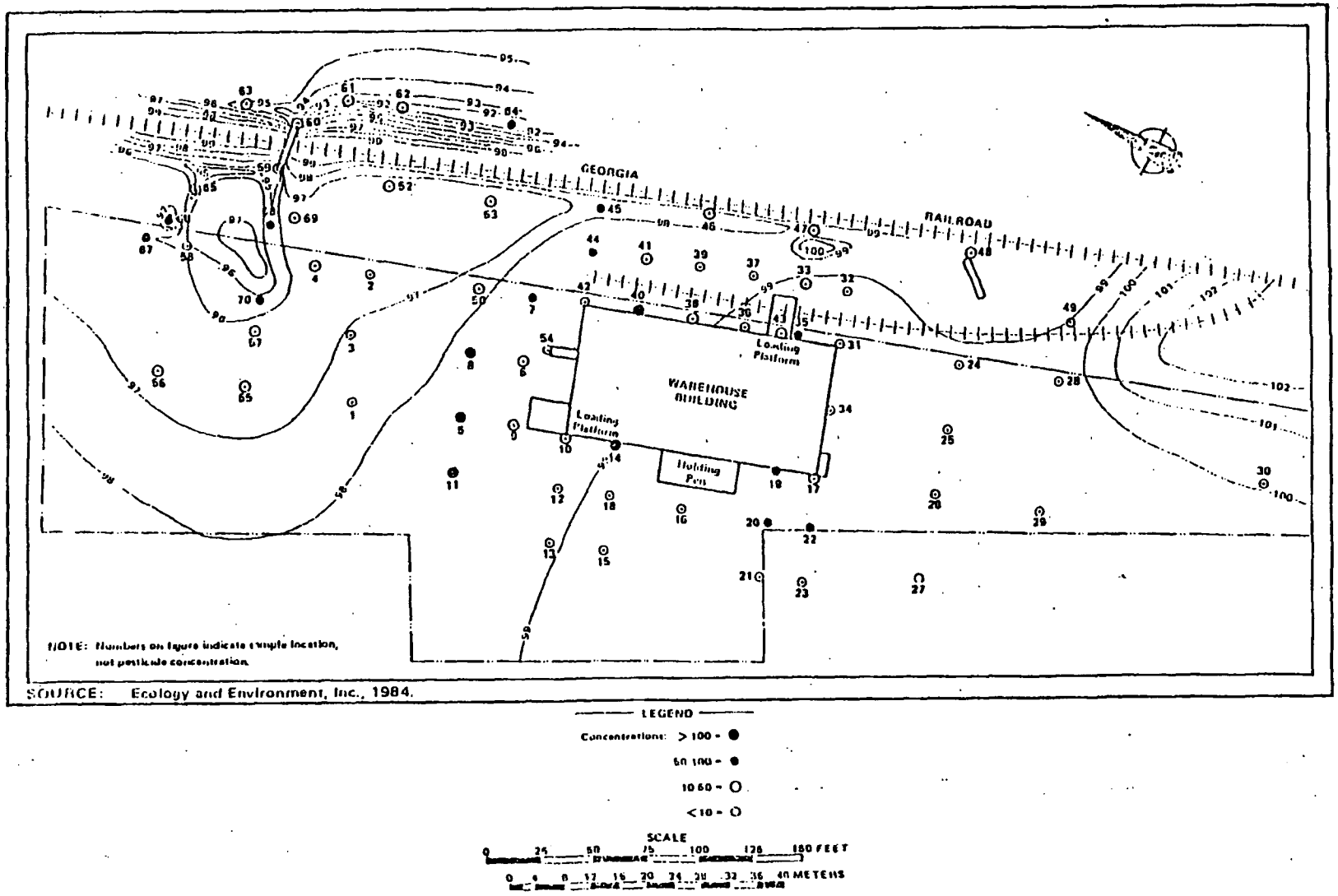

Figure 3–4 ARSENIC CONCENTRATIONS IN SURFACE SOIL SAMPLES IN mg/kg (ppm)

Table 3-1

PESTICIDE CONCENTRATIONS IN SOIL SAMPLES (mg/kg)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
Composite A surface	3.06	0.496	0.048	0.957	0.048	<.0001	0.026	0.334	0.240	.386	0.361	0.915	<.0001	<1.0
Composite A' 1.0 ft.	0.660	<.0002	<.0001	0.391	0.010	<.0001	<.0001	0.085	<.0001	<.0002	0.019	0.165	<.0001	2.6
Composite B surface	4.11	0.671	0.053	1.17	<.0002	<.0001	<.0001	0.263	0.186	.472	0.408	0.905	<.0001	<1.0
Composite B 1.0 ft.	0.444	0.030	0.020	0.130	<.0002	<.0001	<.0001	0.017	<.0001	.014	0.028	0.195	<.0001	2.9
Composite C surface	30.8	3.00	0.278	3.15	<.0002	<.0001	<.0001	1.96	2.67	5.44	1.91	15.6	<.0001	97
Composite C 1.0 ft.	1.05	0.290	0.023	0.451	<.0002	<.0001	<.0001	0.048	0.021	.090	0.091	0.813	<.0001	1.0
Composite C' surface	43.5	0.190	0.140	1.39	<.0002	<.0001	<.0001	4.90	9.90	<.0002	14.1	12.9	<.0001	2.9
Composite D surface	5.65	0.296	0.022	0.353	0.004	<.0001	<.0001	0.164	0.140	.293	0.311	2.13	<.0001	11
6-S	160	<.0002	1.38	<.0002	<.0002	<.0001	<.0001	72.2	25.7	19.4	28.7	20.8	<.0001	9.8
6-1	0.011	<.0002	0.005	0.005	<.0002	<.0001	<.0001	0.001	<.0001	<.0002	<.0002	<.0001	<.0001	24.4
7-S	200	41.0	20.8	61.2	<.0002	<.0001	<.0001	76.6	22.4	20.9	8.76	25.4	<.0001	57
7-1	4.05	0.822	0.057	0.566	<.0002	<.0001	<.0001	0.063	<.0001	0.253	0.261	2.03	<.0001	2.6
9-S	55.5	20.2	10.7	<.0002	<.0002	<.0001	<.0001	1.61	<.0001	<.0002	1.40	1.51	<.0001	10
9-1	0.571	0.176	0.008	0.115	<.0002	<.0001	<.0001	0.001	<.0001	0.020	0.020	0.235	<.0001	2.1

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
10-S	0.906	0.004	0.005	0.010	<.0002	<.0001	<.0001	0.089	0.091	<.0002	0.029	0.078	<.0001	46
14-S	33.9	0.139	0.418	0.298	<.0002	<.0001	<.0001	0.031	<.0001	<.0002	16.0	15.4	<.0001	200
14-1	27.3	0.060	0.291	0.316	<.0002	<.0001	<.0001	0.562	1.19	<.0002	14.2	10.7	<.0001	260
14-2	5.50	0.632	0.040	0.263	<.0002	<.0001	<.0001	0.210	0.267	0.472	0.576	2.93	0.108	6.1
17-S	2.20	<.0002	0.007	0.501	<.0002	<.0001	<.0001	0.625	<.0001	<.0002	0.98	0.005	<.0001	10
19-S	165	0.511	1.40	7.96	<.0002	<.0001	<.0001	0.061	12.6	<.0002	12.4	130	<.0001	60
19-1	156	0.015	0.029	0.333	0.009	0.069	<.0001	0.059	0.455	1.16	7.80	146	<.0001	2.4
19-2	1.02	0.320	0.025	0.130	0.020	<.0001	<.0001	0.032	0.036	0.136	0.114	1.00	<.0001	2.0
20-S	0.97	0.118	0.119	0.201	<.0002	<.0001	<.0001	0.609	5.55	<.0002	1.40	0.976	<.0001	71
20-1	0.015	<.0002	<.0001	<.0002	0.015	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	20
22-S	14.4	0.001	2.0	7.01	<.0002	<.0001	<.0001	1.41	<.0001	<.0002	1.81	1.41	<.0001	54
22-1	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	2.6
31-S	41.2	4.80	15.9	6.10	<.0002	<.0001	<.0001	11.7	<.0001	<.0002	2.80	1.90	<.0001	5.6
32-S	33.4	7.90	3.50	7.50	<.0002	<.0001	<.0001	10.3	<.0001	<.0002	1.70	2.50	<.0001	5.8
33-S	73.2	4.90	16.9	2.90	0.011	<.0001	<.0001	14.9	<.0001	14.9	8.40	10.3	<.0001	5.4
33-1	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	4.6
34-S	1.05	0.045	0.709	0.007	<.0002	<.0001	<.0001	0.198	<.0001	<.0002	1.40	1.41	<.0001	2.0

Notes: Concentrations in mg/kg

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
34-1	0.369	<.0002	<.0001	0.274	<.0002	<.0001	<.0001	0.015	0.004	<.0002	<.0002	<.0001	<.0001	2.3
35-S	34.0	1.10	1.98	4.70	<.0002	<.0001	<.0001	2.91	4.90	<.0002	4.28	11.9	<.0001	54
36-S	110	7.90	8.10	10.2	<.0002	<.0001	<.0001	14.5	17.1	13.9	21.0	17.1	<.0001	7.2
37-S	26.8	0.171	0.491	0.692	<.0002	<.0001	<.0001	0.790	1.40	<.0002	1.36	21.9	<.0001	44
38-S	15.0	0.190	0.260	2.00	<.0002	<.0001	<.0001	2.60	<.0001	<.0002	5.10	4.9	<.0001	10
39-S	27.2	1.95	4.90	7.90	<.0002	<.0001	<.0001	5.20	<.0001	<.0002	4.10	2.90	<.0001	56
39-1	0.427	0.246	0.010	0.22	<.0002	0.026	<.0001	0.004	<.0001	0.011	0.014	0.008	<.0001	1.8
40-S	315	1.48	2.10	4.90	<.0002	<.0001	<.0001	3.50	1.90	215	71.5	14.8	<.0001	220
40-1	25.3	2.86	0.233	3.25	<.0002	<.0001	0.413	1.10	1.00	4.06	2.36	9.95	<.0001	1.8
40-2	4.79	<.0002	0.005	2.10	<.0002	<.0001	<.0001	0.007	<.0001	1.48	1.20	<.0001	<.0001	9.6
41-S	298	15.6	17.9	61.4	<.0002	42.6	<.0001	26.5	44.3	15.9	32.4	41.7	<.0001	37
41-1	1.91	0.353	0.037	0.700	<.0002	<.0001	<.0001	0.041	0.016	0.093	0.055	0.531	<.0001	9.8
42-S	166	0.002	0.091	0.400	<.0002	<.0001	<.0001	0.291	5.70	130	21.7	7.57	<.0001	8.1
43-S	119	2.57	1.98	4.10	<.0002	<.0001	<.0001	4.30	7.10	53.0	29.0	16.7	<.0001	34
44-S	29.1	1.09	1.49	2.90	<.0002	<.0001	<.0001	1.81	6.1	<.0002	14.9	<.0001	<.0001	52
45-S	440	0.817	1.67	1.49	<.0002	<.0001	<.0001	1.81	2.91	329	106	<.0001	<.0001	60
45-1	22.1	4.20	3.9	4.1	<.0002	<.0001	3.00	4.90	<.0001	2.0	<.0002	<.0001	<.0001	9.0
46-S	40.1	2.90	7.1	6.10	<.0002	<.0001	<.0001	7.5	<.0001	<.0002	6.0	9.7	<.0001	11

Note: Concentrations in mg/kg

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
47-S	75.0	7.1	14.2	4.9	<.0002	<.0001	<.0001	12.9	16.9	<.0002	6.9	12.1	<.0001	10
47-I	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	5.2
48-S	2.93	0.062	0.029	0.005	<.0002	<.0001	<.0001	0.148	0.298	<.0002	1.0	0.791	<.0001	43
50-S	201	34.5	10.0	88.0	<.0002	<.0001	<.0001	75.4	20.8	14.8	29.4	8.1	<.0001	56
50-I	2.67	0.450	0.032	0.720	<.0002	<.0001	0.070	0.084	0.110	0.282	0.175	0.747	<.0001	<1
52-S	51.5	0.130	0.440	3.03	<.0002	<.0001	<.0001	6.73	5.65	<.0002	15.6	19.9	<.0001	12
53-S	216	10.5	21.0	14.6	<.0002	15.2	<.0001	28.7	41.7	14.7	28.6	40.6	<.0001	12
53-I	26.8	3.90	2.90	1.67	<.0002	<.0001	7.90	3.58	<.0001	6.90	<.0002	<.0001	<.0001	26
54-S	12.5	4.52	7.99	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	6.6
54-I	1.00	0.353	0.024	0.485	<.0002	0.118	<.0001	0.040	<.0001	0.016	0.045	0.794	<.0001	14
57-S	31.2	0.723	0.739	7.48	<.0002	<.0001	<.0001	10.9	<.0001	<.0002	8.73	2.62	<.0001	11
58-S	171	16.7	16.3	21.5	<.0002	<.0001	<.0001	42.8	1.60	<.0002	55.6	17.4	<.0001	7.4
58-I	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	4.0
59-S	209	21.4	19.5	18.7	<.0002	<.0001	<.0001	26.5	39.7	68.9	75.2	18.9	<.0001	11
59-I	25.6	3.60	2.90	2.10	<.0002	<.0001	6.10	6.10	<.0001	4.80	<.0002	<.0001	<.0001	17
60-S	10.8	0.091	0.039	0.020	<.0002	<.0001	<.0001	3.54	<.0001	0.750	4.90	1.50	<.0001	25
61-S	20.4	0.075	0.541	0.691	<.0002	<.0001	<.0001	17.5	0.400	0.370	0.298	0.411	<.0001	44
62-S	17.4	4.10	2.90	3.20	<.0002	<.0001	<.0001	14.4	2.40	5.91	0.201	4.20	<.0001	40
62-I	2.53	<.0002	0.029	<.0002	<.0002	<.0001	<.0001	0.194	0.843	0.952	<.0002	<.0001	<.0001	2.5

Note: Concentrations in mg/kg

Table 3-1 (Cont.)

Sample Number	Chemical Oxygen Demand	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
63-S	4.64	0.198	0.298	0.348	<.0002	<.0001	<.0001	1.60	<.0001	<.0002	0.091	0.020	<.0001	42
64-S	30.6	0.298	0.791	0.648	<.0002	<.0001	<.0001	23.0	0.391	0.480	0.560	4.44	<.0001	54
64-1	0.509	<.0002	0.029	<.0002	<.0002	<.0001	<.0001	0.142	0.330	<.0002	<.0002	<.0001	<.0001	2.9
65-S	1.00	0.009	0.210	0.109	<.0002	<.0001	<.0001	0.557	<.0001	<.0002	0.102	0.009	<.0001	48
66-S	2405	19.0	29.0	36.5	0.090	<.0001	0.241	2000	301	198	<.0002	25.1	<.0001	61
67-S	14.4	0.291	0.23	0.598	<.0002	<.0001	<.0001	12.9	<.0001	<.0002	0.098	0.271	<.0001	65
68-S	90.7	6.99	4.98	6.57	<.0002	<.0001	<.0001	10.0	<.0001	<.0002	0.801	1.42	<.0001	57
69-S	6.84	0.391	0.548	0.421	<.0002	<.0001	<.0001	2.40	<.0001	<.0002	1.40	1.60	<.0001	40
70-S	4.83	0.168	0.257	0.160	<.0002	<.0001	<.0001	2.40	<.0001	<.0002	0.091	0.768	<.0001	71

Notes: Concentrations in mg/kg

Table 3-2

PESTICIDE CONCENTRATIONS FOR SELECTED SOIL SAMPLES
USING EP-TOXICITY TESTING EXTRACTION PROCEDURES (µg/kg)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Heptachlor	p,p'DDE	o,p'DDT	Endrin	p,p'DDD	Arsenic
41-S	4.60	1.03	0.05	2.80	0.14	<.20	0.58	<.10	<10
45-S	7.89	1.60	0.79	<.10	2.00	3.50	<.20	<.10	157
59-S	2.90	1.40	0.41	<.10	0.70	<.20	0.39	<.10	60
64-S	1.70	<.20	0.37	<.10	0.58	<.20	0.38	0.37	10

4. SITE HYDROLOGY

The Monroe area lies within the Piedmont physiographic province which characterizes most of northern Georgia. Bedrock in the region consists of igneous and metamorphic rocks. The overlying soils have formed in situ, directly from the weathered bedrock, and usually consist of red-colored silts and clays. This is essentially what E & E found at the site during its soil sampling program.

Groundwater in such areas may occur under water table conditions in the soil, usually in lower topographic areas, and in the bedrock itself, usually in higher topographic areas. The site under investigation occurs in a relatively high area, essentially on a topographic divide, according to the Monroe 7.5-Minute Topographic Map published by the United States Geological Survey (USGS). The site is indicated as occurring at an elevation of approximately 885 feet. The nearest perennially flowing streams occur at elevations nearly 100 feet lower than the site. This would tend to indicate that the water table probably underlies the site at depths of many tens of feet, and probably occurs in the bedrock and not the soil.

Because of the high clay content of the soils, precipitation does not readily infiltrate through them as groundwater recharge. This was quite noticeable during E & E's soil survey. Although the site was muddy and puddled because of recent rains, the one-foot samples were relatively dry. When this factor is combined with the surface versus one-foot analytical results presented in Section 3, there is no reason to think that a groundwater contamination problem would exist beneath the site.

E & E also contacted the USGS office in Atlanta to obtain location information on existing wells. The USGS is presently preparing a water resources report for Walton County. For this report, an inventory of existing wells has been made. The inventory shows that the closest operating wells are approximately two miles to the west in a completely different watershed.

5. SUMMARY AND CONCLUSIONS

The soil sampling program delineated areas of surface soils on-site containing pesticide concentrations apparently in excess of background levels. These areas are generally north and east of the warehouse building. Concentrations at depths as shallow as one foot, however, are usually two orders of magnitude lower than the surface concentrations, indicating that the site soils have significant adsorptive capability.

Analysis of extracts from some of the most contaminated soil samples, using the EP-Toxicity Test Extraction Procedure, produced concentrations in the low part per billion range. Such concentrations are well below the maximum allowable concentrations for the EP-Toxicity compounds.

The hydrogeology of the area and the specific site setting are such that the water table probably occurs at several tens of feet beneath the site. A significant soil thickness exists between the land surface and the water table. E & E's investigation has determined that the site soils are highly adsorptive with respect to the pesticides in question.

Based on the results of the investigation, E & E concludes the following:

- Based on the results of the EP-Toxicity testing, it is clear that no potential exists for significant amounts of pesticide to leave the site, in solution, in any surface water drainage.

- Based on the results of the EP-Toxicity testing and the depth-discrete soil sampling and analysis, it is clear that no potential exists for significant amounts of pesticide to leave the site by vertical infiltration to the water table.

- The only apparent routes of migration for pesticide contaminants to leave the site are in an adsorbed form on suspended sediment flowing through the northern culvert or in an adsorbed form on windblown dust.

APPENDIX A

LABORATORY PROCEDURES

A.1 METHODS OF ANALYSIS

A.1.1 Analysis for Pesticides

The pesticide analyses of specific samples were conducted in accordance with the procedures set forth in the United States Environmental Protection Agency (EPA) publication, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982. All samples were prepared by soxhlet extraction, as specified in method 3540 of the EPA publication. In addition, additional aliquots of four of the samples were subjected to the EP-Toxicity Test Extraction Procedure, as specified in method 1310 of the EPA publication. Once prepared, each sample was then analyzed by a gas chromatograph (Varian Model 3700) equipped with an electron capture detector, as specified in method 8080 of the EPA publication.

When pesticides were determined to be present, an additional confirmation step was employed. This step involved the use of an alternate gas chromatographic column to confirm the identity of the pesticide. The chromatographic conditions for the primary and secondary columns can be found in Tables A-1 and A-2, respectively.

A.1.2 Analysis for Arsenic

Arsenic was analyzed on an atomic absorption spectrophotometer (Instrumentation Laboratory Model 457) according to method 7060 of the EPA publication.

A.2 QUALITY ASSURANCE

All phases of this study, including the final report, have been independently audited by E & E's internal quality assurance group. All data and the contents of the report have been accepted by the group and authorized for release.

A.3 QUALITY CONTROL

All glassware used is washed with soap, rinsed with deionized water, rinsed again with acetone and hexane, and dried in an oven. The glassware used for metals is rinsed with nitric acid followed by deionized water and is then dried in an oven.

All solvents are pesticide grade and are subjected to extraction and concentration procedures similar to those used for actual samples.

Low working-level standards are prepared fresh daily from stock standards. The stock standards are prepared fresh monthly from pure analytical standards.

The accuracy of the analytical method is determined by the use of spiked samples* and is calculated as the percent recovery. Spikes of varying amounts were analyzed to insure the accuracy of the method. The percent recovery for the spiked samples is given in Table A-3.

The precision of the analytical method is determined by the analyses of replicate samples. Results of the replicate analyses appear in Table A-4.

Consistent with the quality control program, a sample blank was analyzed to determine whether any interferences were present that may have been contributed by the solvents, the glassware, or the procedure itself. No interferences were detected.

In addition to the recommended confirmational procedures, the presence and identity of pesticides in selected samples were further confirmed via a gas chromatograph/mass spectrometer.

---

*Spiked samples are those that have a known quantity of chemical added and are used to estimate accuracy through percent recovery.

Table A-1

CHROMATOGRAPHIC CONDITIONS
PRIMARY COLUMN

Operator Linda Franzek
Date January 30, 1984
Job Number CC-263
Sample Identification 4750-4932
Solvent Hexane
Analytical Method 8080*

COLUMN
Type Glass
Length 6'
Diameter 1/4" OD, 4mm ID
Liquid Phase (% wt.) 4% SE-30/6% OF-1
Support Supelcoport
Mesh 100/120

CARRIER GAS Nitrogen
Rotameter 30
Inlet Pressure, psig 40
Flow Rate, mL/min. 30

SCAVENGER GAS

SPLIT

FID GAS
Hydrogen, mL/min.
Air, mL/min.

CHART SPEED, cm/min. 1

DETECTOR ECD
Range 10^{-12}
Attenuation 256

TEMPERATURE, °C
Detector 300
Injection Port 220
Column
Initial 200
Program
Final

INSTRUMENT Varian Model 3700

*Publication: United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982.

Table A-2

CHROMATOGRAPHIC CONDITIONS
SECONDARY COLUMN

Operator Linda Franzek
Date January 30, 1984
Job Number CC-263
Sample Identification 4750-4932
Solvent Hexane
Analytical Method 8080*

COLUMN
Type Glass
Length 6'
Diameter 1/4" OD, 4mm ID
Liquid Phase (% wt.)
1.5% OV-1/1.95% QF-1
Support Supelcooort
Mesh 100/120

CARRIER GAS Nitrogen
Rotameter 30
Inlet Pressure, psig 40
Flow Rate, mL/min. 30

SCAVENGER GAS

SPLIT

FID GAS
Hydrogen, mL/min.
Air, mL/min.

CHART SPEED, cm/min. 1

DETECTOR ECD
Range 10^{-12}
Attenuation 256

TEMPERATURE, °C
Detector 300
Injection Port 220
Column
Initial 200
Program
Final

INSTRUMENT Varian Model 3700

*Publication: United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982.

Table A-3

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SAMPLES
(mg/kg as received)

Compound	E & E Laboratory No. 83-	Field Sample No.	Original Value	Amount Added	Amount Determined	Percent Recovery
Arsenic	139	70-S	.71	.05	.707	99.6
Arsenic	4779	10-S	.045	.05	.094	97.6
Arsenic	4819	22-S	.054	.05	.099	90.2
Arsenic	4864	37-S	.044	.05	.087	85.4
Arsenic	4870	39-S	.056	.05	.103	93.0
Lindane	4893	47-1	ND	0.60	0.65	108
Heptachlor	4893	47-1	ND	0.60	0.63	105
Aldrin	4893	47-1	ND	0.60	0.68	113
Lindane	4928	58-1	ND	0.60	0.60	100
Heptachlor	4928	58-1	ND	0.60	0.59	98.3
Aldrin	4928	58-1	ND	0.60	0.58	96.7
Lindane	4853	33-1	ND	0.60	0.55	91.7
Heptachlor	4853	33-1	ND	0.60	0.61	102
Aldrin	4853	33-1	ND	0.60	0.59	98.3
Endrin	4814	20-1	1.4	0.90	2.25	97.8
Heptachlor Epoxide	4814	20-1	ND	0.40	0.37	92.5
Dieldrin	4814	20-1	ND	2.0	1.95	97.5
Endrin	4800	17-S	0.98	0.90	1.75	93.1
Heptachlor Epoxide	4800	17-S	ND	0.40	0.32	80.0
Dieldrin	4800	17-S	ND	2.0	1.87	93.5
Endrin	129	65-S	0.102	0.90	0.98	109
Heptachlor Epoxide	129	65-S	ND	0.40	0.39	97.5
Dieldrin	129	65-S	ND	2.0	1.91	95.5

Table A-4

QUALITY CONTROL FOR PRECISION
RESULTS OF REPLICATE ANALYSES
(mg/kg as received)

Parameter	E & E Laboratory No. 83-	Field Sample No.	Original Analysis (A)	Replicate Analysis (B)	Relative Percent Difference (RPD)
Arsenic	4870	39-S	5.9	6.1	3.3
Arsenic	4883	44-S	41	40	2.5
Arsenic	C-	Composite	97	64	41
Arsenic	129	65-S	48	49	2.1
Arsenic	4864	37-S	4.8	5.6	15
Alpha-BHC	4807	19-1	0.015	0.013	14
Lindane	4807	19-1	0.029	0.021	32
Beta-BHC	4807	19-1	0.333	0.236	34
p,p'DDE	4807	19-1	0.059	0.054	8.8
o,p'DDD	4807	19-1	0.455	0.422	7.5
Aldrin	4814	20-1	0.015	0.017	12
Pesticides	4820	22.1	ND	ND	0

ND = None detected at the stated detection limit.

$$RPD = \frac{[A-B]}{A+B/2} \times 100$$

SITE INVESTIGATION REPORT

H.M. ARNOLD CO.

MONROE, GEORGIA

GAD980556831

JEFFREY M. WILLIAMS
REMEDIAL ACTIONS UNIT
GEORGIA ENVIRONMENTAL PROTECTION DIVISION
SEPTEMBER 11, 1984

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List Of Figures

1.0 EXECUTIVE SUMMARY

The H. M. Arnold Company site is located at 137 East Fambrough Street in Monroe, Georgia and consists of 2 acres of land approximately 3 miles southwest of the Alcovy River. The facility has been inactive in the production of chlorinated pesticide compounds since 1969.

In 1980, the Chevron Chemical Company voluntarily reported this site to the U.S. EPA via a CERCLA 103c notification. In December 1983, Chevron Chemical contracted with Ecology and Environment to evaluate the extent of contamination at the site. In February 1984, personnel from the Georgia EPD met with Robert L. Timmel, of Chevron Chemical Co. to discuss the proposed remedial action for the site. Subsequent remedial action by a private contractor, I.T. Corp., removed approximately 1200 yd^3 of contaminated soil which was transported to a disposal facility in Pinewood, South Carolina.

The site has been properly filled with an impervious clay layer and leveled to minimize potential runoff. There are no known wells in the vicinity and the waste is characteristically insoluble; hence there is a minimal threat to groundwater at the site.

pesticides

this doesn't make sense.

The Georgia EPD conducted a site inspection at this facility on May 7, 1984, after the remedial action was complete. ~~A~~ Three composite sample was taken from sections 1,4 and 8 (fig. 3). No significant contamination of the soils was detected after excavation of the site and no further remedial action should be required at the site.

What about off-site?

2.0 BACKGROUND

2.1 Location

The H.M. Arnold Co. site is located at 137 East Fambrough Street, Monroe, Georgia 30655 in Walton County. The site is at latitude 33°46'57".6N and longitude 83° 42' 19".7 W on the Monroe Quadrangle 7.5 minute series, USGS Map (fig. 1).

2.2 Site Layout

The site consists of a two (2) acre tract of land located between 137 East Fambrough Street and Fifth Street, parallel to the Seaboard Coastline Railroad (fig. 2).

2.3 Ownership History

The current owner and past owner of the site is Mr. Harry M. Arnold of Monroe, Georgia. From approximately 1952 to 1969, Chevron Chemical Company leased the 2 acre site and adjacent rail spur from Mr. Arnold and operated an agrichemical marketing warehouse and dust formulating plant. Current operator of the site is Childscapes, Inc., a manufacturer of children's playground equipment.

2.4 Site Use History

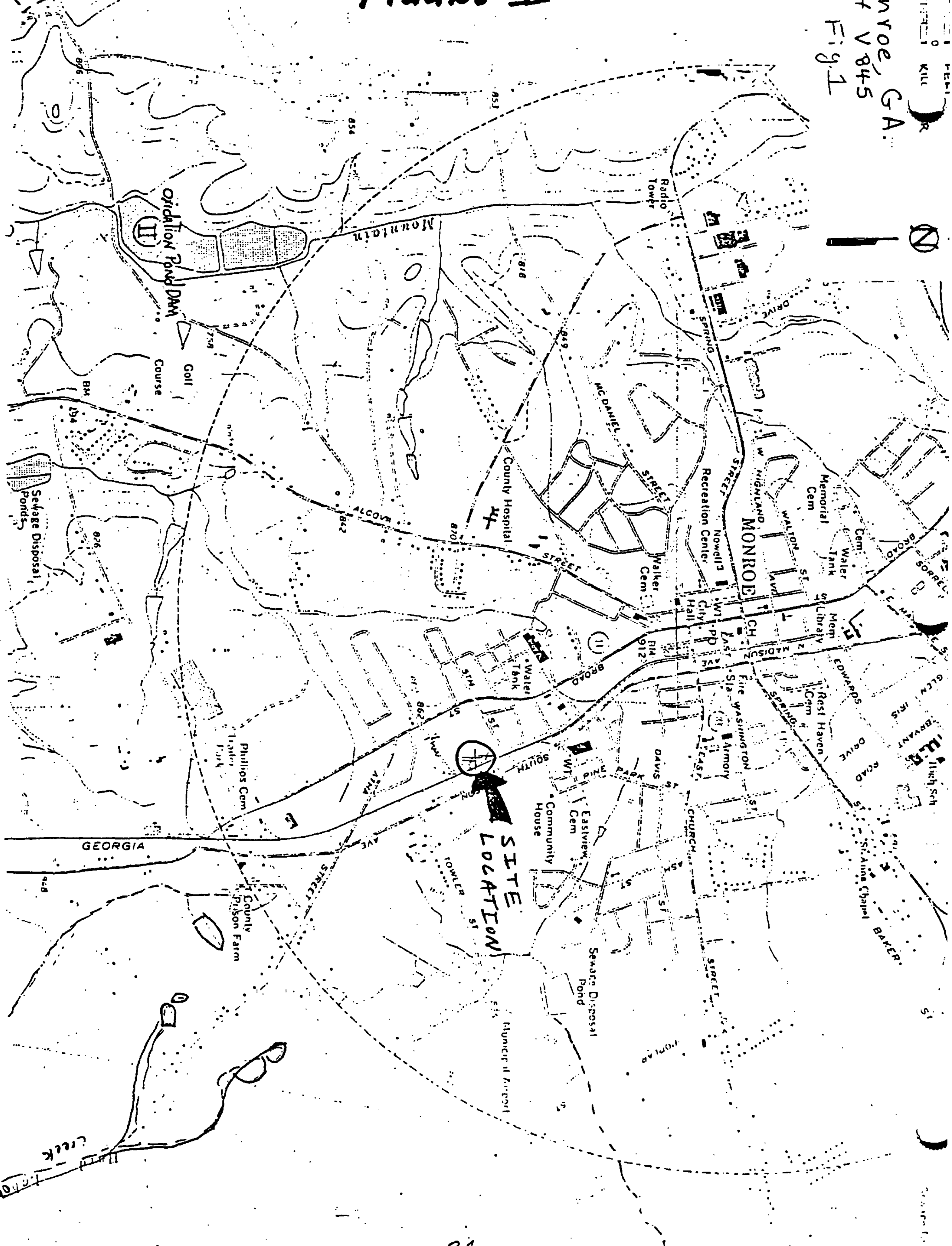
The site was used as a marketing warehouse and dust formulating plant for chlorinated pesticides such as DDT, Lindane, DDD, Endrin and Dieldrin.

2.5 Permit and Regulatory History

(Not Applicable) In 1981, the Chevron Chemical Company reported the subject site to EPA as a potential hazardous waste site required via a CERCLA 103c notification.

FIGURE I

Monroe, GA.
64 V 845
Fig 1



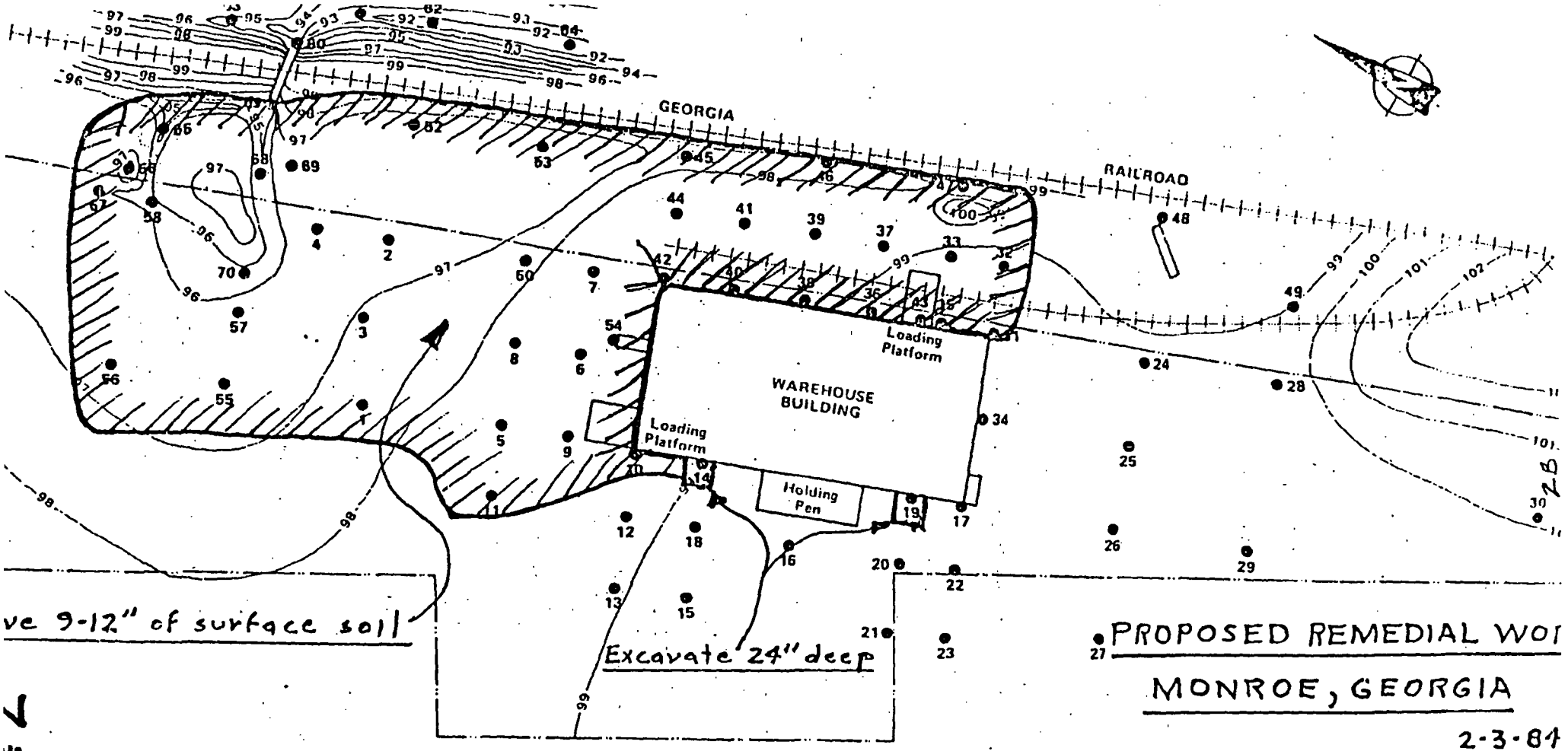

GEORGIA
RAILROAD
WAREHOUSE BUILDING
Loading Platform
Loading Platform
Holding Pen
Excavate 24" deep
ve 9-12" of surface soil
PROPOSED REMEDIAL WOI
MONROE, GEORGIA
2-3-84
FIGURE 2
nc., 1984.
LEGEND
● = Surface Sample Locations
Contour Interval = One Foot
(Datum is 100 feet below site benchmark)
SCALE
0 25 50 75 100 125 150
0 4 8 12 16 20 24 28 32 36 40 ME

Fig 2.

Fig 2.

2.6 Remedial Actions to Date

Remedial Actions at the subject site were performed during the period from May 1 through May 10, 1984. The reason for remedial action was a voluntary cleanup committment by the Chevron Chemical Company. Remedial Action at the site consisted of removing contaminated soil and the vacuuming of dust inside the warehouse building. All waste was transported to SCA Chemical Services in Pinewood, S.C. for disposal. Appendix A contains photographs of the operation.

2.7 Summary Trip Report

Prior to visiting the site, the city administrator for Monroe, Mr. E.R. Jones, was notified of the inspection. In addition, Mr. Gene Pietso, the current operator of the site and President of Childscapes, Inc. was notified. The EPD personnel present during the site inspection and a chronological review of events is as follows:

Jeff Williams -	Project officer, sampling team
Thomas M. Westbrook -	Sampling team
Claude W. Goodley -	Site assistance team
Joseph T. Surowiec -	Site assistance team

On May 1, 1984, we arrived on site at 1000 hours to observe the initial excavation and stockpiling of material according to work schedule. Excavation of contaminated soil was completed by May 6, 1984. We conducted a preliminary reconnaissance of the area with Robert L. Timmel of the Chevron Chemical Co. We observed the location of alleged open dump areas and noted possible sampling locations for May 7, 1984 sampling project. Sample splits were taken between Georgia EPD personnel and I.T. Corp. Sample areas 1,4 and 8 were tested by the Georgia EPD to ensure no residual pesticides exist at the subject site (fig. 3). All remedial action at the subject site was completed by May 10, 1984.

Figure 3.

FIGURE 3

EPD took # 3 composite samples from sections 1, 4, 8.

culvert

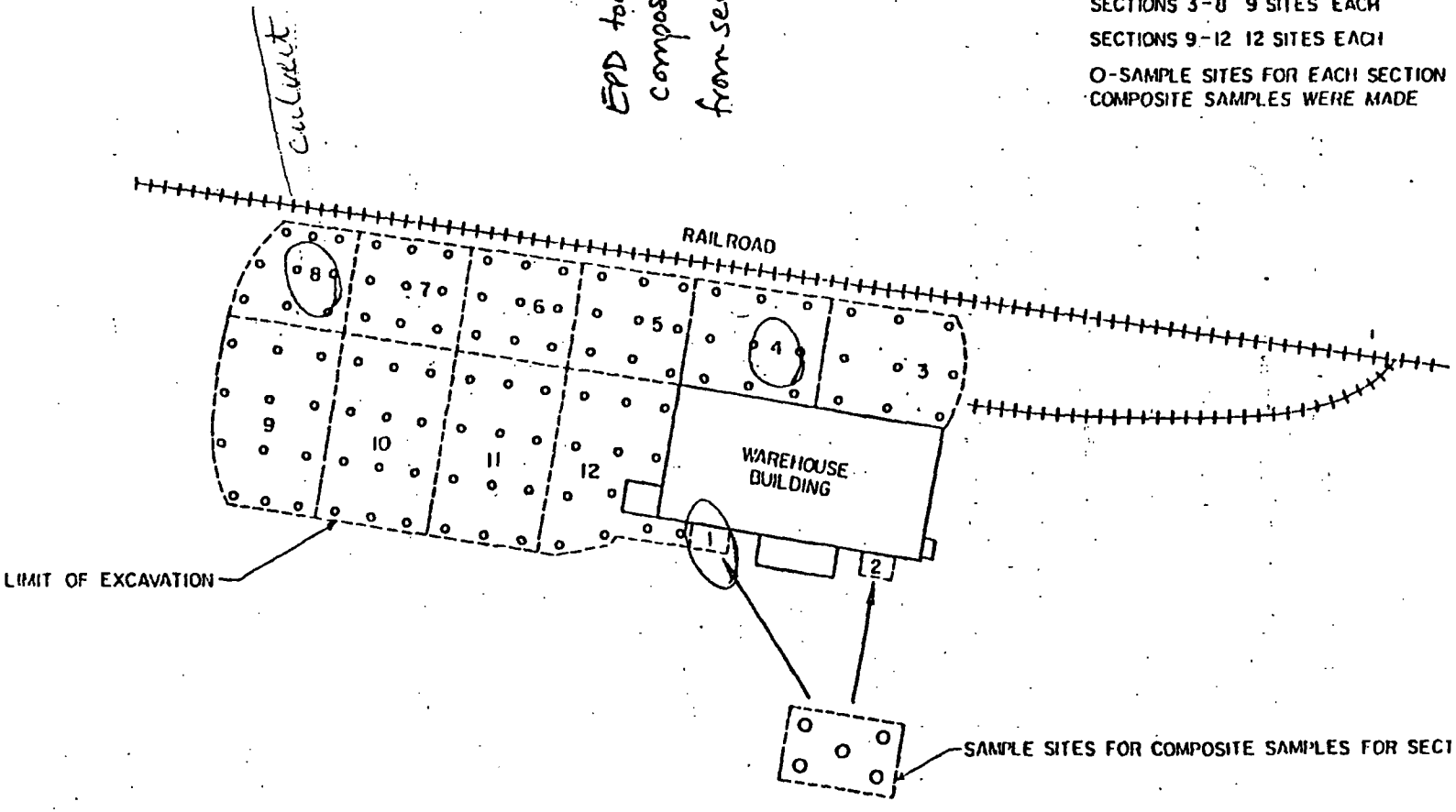
LEGEND FOR 1-12 SAMPLE SECTIONS

SECTIONS 1 & 2 5 SITES EACH

SECTIONS 3-8 9 SITES EACH

SECTIONS 9-12 12 SITES EACH

O-SAMPLE SITES FOR EACH SECTION FROM WHICH COMPOSITE SAMPLES WERE MADE



0 25 50 75 100 125 150
SCALE FEET

3A

IT CORPORATION

SAMPLING SCHEME OF FORMER CHEVRON CHEMICAL AGRICULTURE CHEMICAL FORMULATION PLANT SITE

FIGURE 3A

DESIGNED BY: J RAGSDALE | DRAWN BY: DSROY

PROJECT NO: FS7569 | SCALE:

5/18/94

3.0 ENVIRONMENTAL SETTING

3.1 Topography

Walton County is located in the middle of the Piedmont section of Georgia. Most of the upland areas are gently sloping but some areas along drainage ways are strongly sloping. The site under investigation occurs in a relatively high area, on a topographic divide. The site occurs at an elevation of approximately 885 feet. The nearest perenially flowing streams are approximately 100 feet lower in elevation than the site. Slope of the site is approximately 2 to 6 % with the slope increasing to the Southwest. The site is located approximately 1.2 miles within the city limits of Monroe on Highway 11 North (fig. 1).

3.2 Surface Waters

The Apalachee, Yellow and Alcovy Rivers drain all of the county. The Alcovy River provides the main source of drinking water for the town of Monroe and is located approximately 3 miles NW from the site. Mountain Creek, Bay Creek, Maple Creek and Beaver Dam Creek all drain into the Alcovy River, which empties into Jackson Lake. Grubby Creek becomes intermittent west of the Sewage disposal pond and flows perennially east of the sewage disposal pond at Poplar Street. Also, one intermittent tributary from Mountain Creek occurs near Alcova St. and Fifth St. at an elevation of 800 feet. Flow rate of the Alcovy River averages 262 $ft^3/sec.$ at the Covington water works intake, located six miles northeast of Covington. The site is not located in the 100 year flood plain, hence the potential for flooding at the site is virtually nonexistent. No stream classification is available in regard to this area[10].

3.3 Geology and Soils

The site is underlain by both Igneous and Metamorphic rocks. Sixty percent of the area is underlain by biotitic gneiss, mica schist and amphibolite. According to the Geologic map of Georgia, biotite gneiss and scist underlie about sixty percent of the county with granite gneiss under the remainder. The upper most 5 to 14 inches of coarse, sandy loam or sandy clay loam overlies 2 to 4 feet of firm sandy clay loam to clay. The depth to bedrock ranges from 3 to 30 feet but is commonly less than 10 feet. Permeability of these soils is moderate. The color of the subsoil ranges from yellowish red to red and clay content increases with depth. The soils at the site have a very high adsorptive capacity with respect to the pesticides involved[6].

3.4 Ground Water

Generally, ground water in this area is found under water table conditions (unconfined)[9]. Ground water is stored in the mantle and in fractures in the underlying bedrock. The available area of storage of water in the mantle is limited, consequently wells within the area are few and generally low producers of water. The average well produces 20 gpm. There are no wells located within approximately 2-3 miles of the site[1]. These wells appear to be located in a different watershed from the site[9].

3.5 Climate and Meteorology

The climate of Walton County is of the humid, warm, temperate, continental type characteristic of the southeastern part of the United States[6]. Average rainfall ranges from 44 to 59 inches a year with average annual runoff from 10 to 39 inches[6]. Average high temperatures for the months of June, July and August are about 90°F. The average minimum temperature for the

summer months is about 67°F. Winter weather is moderate with inconsequential snowfall. Winds are generally from the northeast in fall and winter and southerly in spring and summer. Most of the soils are highly weathered, leached and strongly acid due to the climate of this region.[6]

3.6 Land Use

The subject site is located in the Southeastern section of the city of Monroe, about ½ mile from the center of town. Land use in the immediate area is limited to residential and commercial purposes[6]. Residential areas adjacent to the site occupy approximately 2 acres.

3.7 Population Distribution

The site is bordered on the west by a recently constructed residential complex. One private residence is located along the north boundary of the site.

3.8 Water Supply

As stated in section 3.2, the Alcovy River provides the main water supply for the town of Monroe and its residents. The surface intake on the Alcovy for the city of Monroe is located at the bridge crossing of Georgia Road 10 and U.S. Highway 78 on the upstream side of the River. This system serves over 10,000 residents of Monroe and the surrounding area. The 1983 annual metered rate of water to the consumer was 768,445,000 gallons/year. These estimates are based on information provided by the Public Works Dept., Monroe.

3.9 Critical Environments

There are numerous private ponds less than one mile southeast of the subject site near the municipal airport. Hard Labor Creek is located 3 miles

southeast and downslope of the site. Hard Labor Creek State Park is approximately 10 to 12 miles southeast of the site. The Park provides recreational activities to the public such as fishing and camping.

The swampland area along the flood plain of the Alcovy River supports a wide variety of plant and animal life. These swamplands are approximately 4 miles downslope and southwest of the subject site. The particular endangered species in this area are as follows:

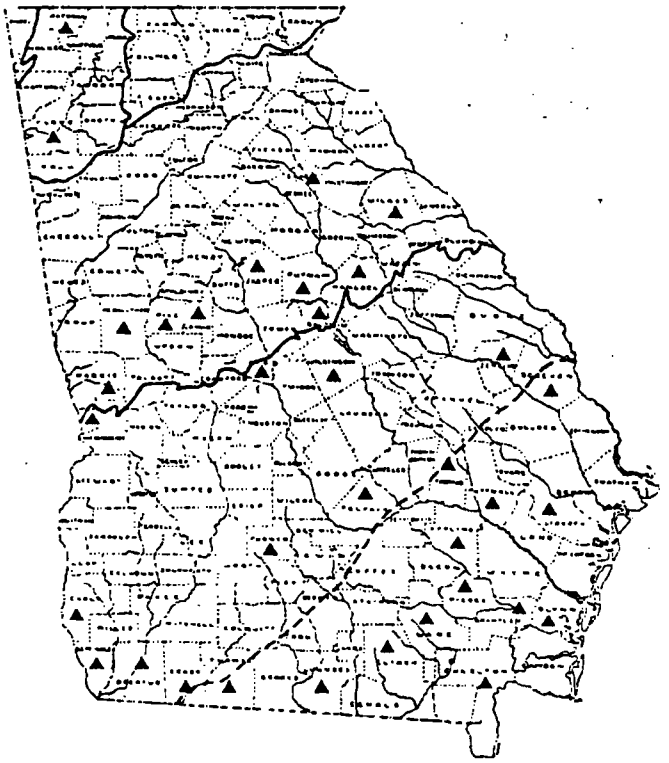
Red Cockaded Woodpecker
Indiana Bat
Southern Bald Eagle
Amphianthus Plant
Sedum Plant

(see table 3.9)

TABLE 3.9

RED-COCKADED WOODPECKER — Order Piciformes

*Picoides borealis (Vieillot) — Family Picadae



(REFER TO COLOR PHOTO PAGE 1)

Common Name: Red-cockaded woodpecker.

Characteristics: A gregarious, non-migratory species similar in appearance to the hairy woodpecker, except that the top of the head is black, the cheeks conspiciously white, and the sides spotted with black. Males have an inconspicious red streak above each ear. The average length for the species is 215 mm. (Peterson, 1947). The nest is easily recognized by pitch (pine sap) that covers the bark below the nest entrance.

Life History: A very gregarious bird (except during the breeding season) that feeds in the upper regions of large pines (Burleigh, 1958). Food consists of insects and arthropods, including the larvae of wood boring insects, and some vegetable matter. When feeding, these birds move from one tree to another, covering large areas in the course of a day. Vocalizations usually consist of high-pitched squeals. Nesting is tied very closely to overmature pines, (longleaf, slash, loblolly, and shortleaf) infected with red heart disease, caused by the fungus Formes pini. This

disease facilitates excavation by the woodpecker. The average age of cavity trees in north Florida was 85 years and ranged from 59 to 167 years (Baker, 1971).

Preferred Habitat: The Red-cockaded woodpecker is one of the most habitat-specific North American woodpeckers. For nesting and roosting it requires overmature pine trees infected with red heart disease. Understory vegetation less than 1.5 m. (5 ft.) in height is generally preferred.

Status: Currently listed as endangered on both the Federal Endangered Species List and Georgia's Protected Species List.

Population Trends: This species has declined drastically over the years due to the logging of mature pine forests. However, recent management practices have resulted in substantial population increases in some areas.

Estimated Populations: Estimates by Thompson (1971) indicate 200 individuals in Georgia and 3000 in the United States. The Red-cockaded Woodpecker Recovery Team (1977) estimates the total population to be less than 10,000.

Reproduction: Red-cockaded Woodpeckers apparently mate for life. Eggs are laid in clutches of 2-7 and incubation begins before the clutch is complete; consequently the hatch of the young is staggered. This may be a mechanism regulating brood size to the availability of food (Lack, 1954). On the average, one to two young are fledged at about 26 to 29 days of age. Although young are foraging for themselves a few days after fledging, they may continue to receive food from their parents for several months (Ligon, 1970). Although as many as 20 cavities may occur in a Red-cockaded Woodpecker "colony" there is never more than one breeding pair per colony (Jackson, et. al., 1976).

Reasons for Decline: Population declines have resulted primarily from reduction of pine forests with trees 60 years old or older (Ibid.). More often than not, management for the species is viewed as incompatible with economic use of the forest (Ibid.). The role of pesticides in the possible reduction of insect food supplies is not yet clearly understood (Chamberlain, 1974) but may be of consequence to the species. Improper use of fire in forest management, competition for nest cavities with other animals, and adverse weather have contributed to the demise of the species (Jackson, et. al., 1976).

Protective Measures Taken: Recognized as endangered under the Endangered Wildlife Act of 1973. Federal and some state forestry agencies have initiated policies of saving large pine trees infected with red heart disease in areas where this species is know to occur (Red Data Book, 1973). Some paper companies are also taking steps to protect Red-cockaded habitat, including providing support stands. Piedmont National Wildlife Refuge and Fort Benning Military Reservation selectively manage Red-cockaded populations.

Present Distribution: South Atlantic and Gulf states from southern Missouri, western Kentucky, Tennessee, and southeastern Virginia, south to the Gulf Coast, and northern Florida, including all of Georgia (Burleigh, 1958).

Past Distribution: Past distribution included unfragmented populations extending into northern Arkansas and southern Missouri (Jackson, et. al., 1976).

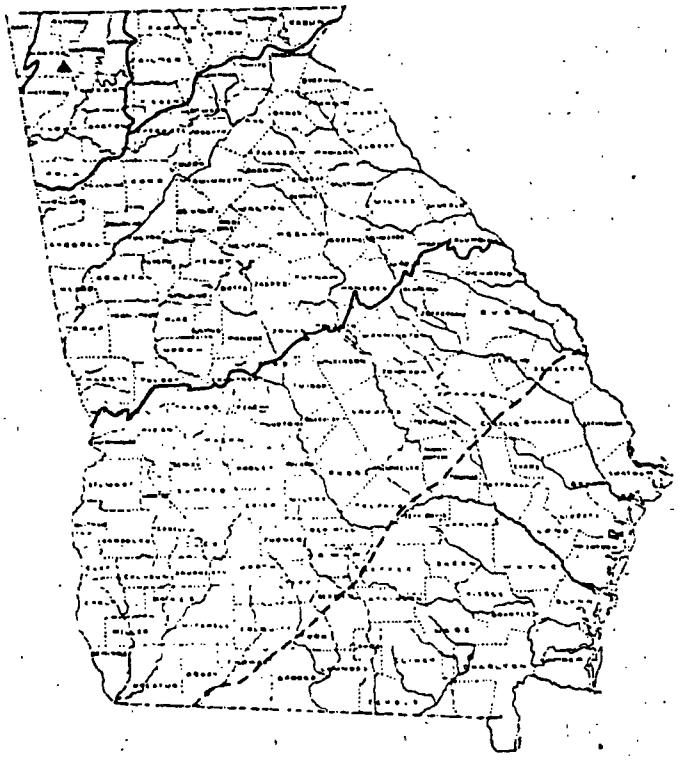
Proposed Management Measures: Proposed management includes the identification of extant populations, protection and management of existing populations, the reestablishment of the species within its former range, and an emphasis on public education.

Number in Captivity: None known.

* The Red-cockaded Woodpecker has recently been changed from Genus Dendrocopus to Genus Picoides, Supplement #33, A.O.U. Checklist, Auk 90:411-419, 1976.

INDIANA BAT — Order Chiroptera

Myotis sodalis (Miller and Allen) — Family Vespertilionidae



(REFER TO COLOR PHOTO PAGE 1)

Common Names: Indiana bat, Indiana myotis, Social bat.

Characteristics: This is a medium sized Myotis with a small foot. It is dull, dark gray, nearly black, or sometimes chestnut color. The fur is fine and fluffy with a pinkish gray under-color. The calcar has a slight keel. This bat is more tolerant of human disturbance than the Gray bat Myotis grisescens (Humphrey and Scudder, 1976).

Measurements: length, 70-90 mm. (2.8-3.5 in.); tail, 27-44 mm. (1.1-1.7 in.); hind foot, 7-9 mm. (.28-.36 in.); forearm, 36-41 mm. (1.4-1.6 in.).
wingspread, 240-267 mm. (9.5-10.5 in.).
weight, 4-5 g. (.14-.18 oz.).

Life History: The Indiana bat is a nocturnal insectivore. This species is colonial and hibernates in several caves in Kentucky and Missouri. It dis-

perses as small groups in summer. Females produce a single young each year, born at the beginning of July and flying 4 weeks later (Humphrey and Scudder, 1976). Like all insectivorous bats, it is valuable in insect control and deposits quano, a rich source of nitrogen.

Preferred Habitat: For winter hibernation, it selects caves which are moderately cool (3-6°C) with high humidity (87%). Since these specifications are met near the cave entrance, animals congregate at the entrance, making them especially vulnerable to harassment (Greenhall, 1973).

Status: Currently listed as endangered on both the Federal Endangered Species List and Georgia's Protected Species List.

Population Trends: Wintering populations appear to be on the decline in Indiana, Illinois, and Kentucky. A recent breeding colony census indicated a 71.5% decrease in this particular breeding unit (Engel, J.M. et. al., 1976). Total numbers have declined from 535,000 in 1960 to 354,000 in 1975 (Humphrey and Scudder, 1976).

Estimated Populations: Present populations are estimated at 354,000 individuals (Humphrey and Scudder, 1976). 90% hibernate in two caves in Kentucky and a cave and a mine in Missouri (Greenhall, 1973). Estimates for Georgia do not exist. The Indiana Bat Recovery Plan (1977) does not indicate a Georgia population.

Reproduction: The Indiana Bat breeding season occurs during the first ten days of October (Lowman, 1975). Limited mating also occurs before the hibernating colony disperses in late April. A single young is produced in late June.

Reasons for Decline: Vandalism, collecting, disturbance by spelunkers and banders, loss of habitat, commercialization of caves, and pesticide poisoning all have contributed to population declines. These human pressures combined with natural mortality and other hazards exert severe pressure on this particularly vulnerable species.

Protective Measures Taken: Nationally protected under the Endangered Species Act of 1973. Several states, such as Kentucky, have legislation protecting bats. In Georgia, they are protected under the Endangered Wildlife Act of 1973 and Cave Protection Act of 1977. The U.S. Forest Service is currently surveying National Forest lands for Indiana bat populations. Many organizations are cooperating to prohibit disturbance of bat caves. In 1972 the Depratment of the Interior issued a moratorium on the issuance of bat bands (Harvey, 1975). Except for its wintering habits, little is known about the biology of the species. In wintering areas, it exhibits highly colonial behavior. As many as 300 individuals per sq. ft. have been estimated within hibernating clusters (Engel, J.M. et. al., 1976). Studies indicate that during breeding, this species is less colonial and does not utilize caves. Breeding populations therefore would be less concentrated and less vulnerable (Engel, J.M. et. al., 1977).

Present Distribution: Myotis sodalis occurs in the midwest and eastern United States from the western edge of the Ozark region in Oklahoma, to southern Wisconsin, east to Vermont, and as far south as northern Florida

including Georgia where it has been taken from Walker County. The range is within the Mississippi watershed and the cavernous limestone areas associated with this geographical location.

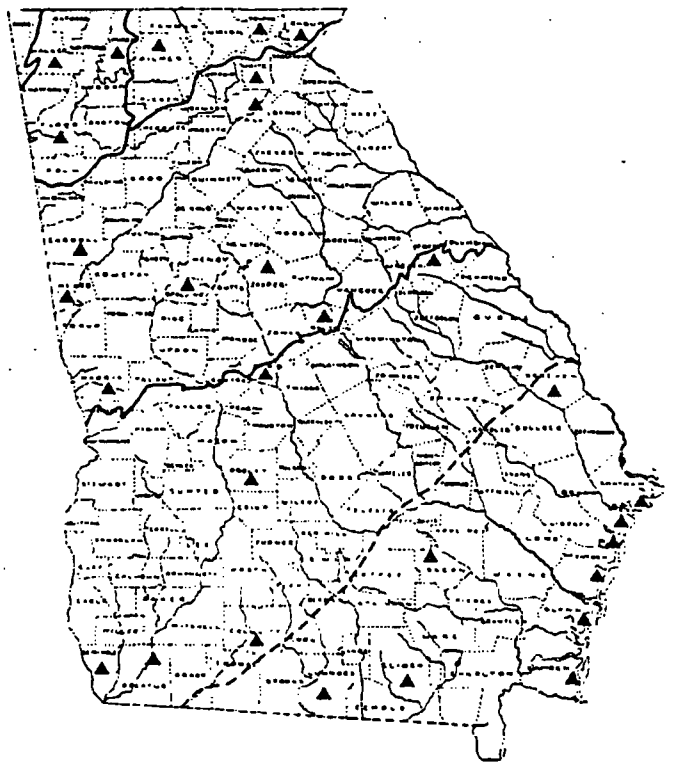
Past Distribution: Same as present distribution but in much greater numbers.

Proposed Management Measures: Acquisition and protection of the caves inhabited by the Indiana bat and/or partial blockage of these cave entrances to discourage human disturbance. Public education is also needed.

Number in Captivity: None known.

SOUTHERN BALD EAGLE — Order Falconiformes

Haliaeetus leucocephalus leucocephalus (Linnaeus) — Family Accipitriidae



(REFER TO COLOR PHOTO PAGE 1)

Common Name: Southern Bald Eagle.

Characteristics: Haliaeetus leucocephalus leucocephalus is smaller than the northern subspecies, Haliaeetus leucocephalus alascanus, but is still a large raptor with an imposing wingspan of 1.83 m. (6 ft.) or more. The female bald eagle is larger than the male, a characteristic true of most raptorial species. Adults of both sexes are brown with a strikingly white head, appearing bald at a distance.

Life History: The bald eagle is a bird of inland waterways, and estuarine systems. The species exists at the top of the food chain with a diet chiefly of fish and occasional birds and mammals. After the late winter nesting season, eagles congregate in areas where food is more abundant. Many birds then use the same roost trees (Chamberlain, 1974).

Preferred Habitat: The Bald Eagle requires suitable wetland areas for hunting, and undisturbed lakeshore or coastal regions in which large trees for roosting

and nesting are available.

Status: Currently listed as endangered on the Federal Endangered Species List and Georgia's Protected Species List.

Population Trends: The regional population has been declining in the last thirty years. Florida populations have declined 50% in the last 30 years (Peterson, 1976).

Estimated Populations: About 235 active nests in 1965 in the Southeast were reported (Red Data Book, 1973). Estimates for Georgia are not available, however, fair numbers of migrants are reported annually.

Reproduction: The breeding season is in late fall or winter. Nests are constructed in tops of large trees, usually near water. One to three eggs are laid at intervals of several days. Incubation is about 35 days with both parents sharing brood responsibility (Chamberlain, 1974). Young remain in the nest up to three months. Their maturation rate is slow. The same nests are used annually and new nest material is added each year. Over the years some nests grow to as large as 2.4 m. (8 ft.) across. Maturity is not reached for 4-5 years, at which time adult plumage becomes evident and reproduction becomes possible.

Reasons for Decline: The Bald Eagle, as a wetland species, has long suffered from habitat destruction. Contamination by chlorinated hydrocarbons has also been very significant. Illegal shooting and disturbance of nesting areas have played a significant part in the species' dwindling numbers.

Protective Measures Taken: The Bald Eagle is protected by the State and Federal Government. Many studies are being conducted on the breeding habits and limiting factors. Areas have already been set aside as sanctuaries.

Present Distribution: The Bald Eagle nests primarily in the estuarine areas of Atlantic and Gulf coast, from New Jersey to Texas, and the lower Mississippi Valley southward from eastern Arkansas and western Tennessee, and through southern states, including Georgia, west to California and Baja, California (Red Data Book, 1973). There are no successful nest records in Georgia since 1970 on St. Catherines Island (Johnson, Hillestad, Shanholtzer, Shanholtzer, 1974).

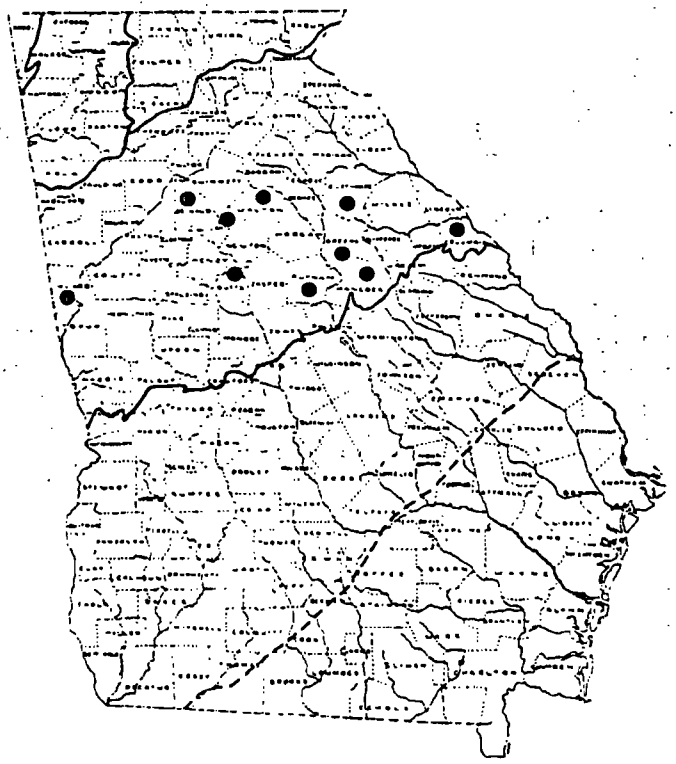
Past Distribution: Same as present, but in greater numbers.

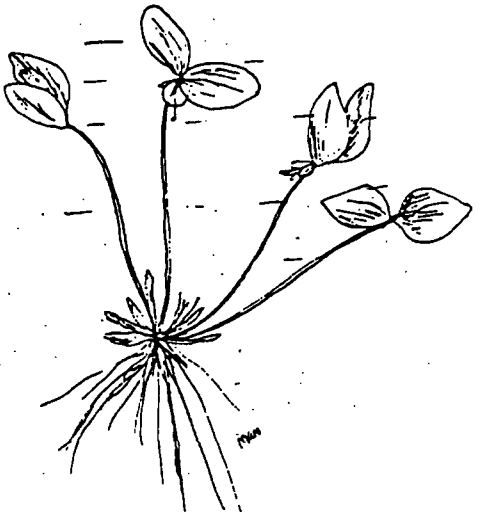
Proposed Management Measures: These must include an inventory of known and potential nest sites. Elimination of chlorinated hydrocarbons from food chains and examination of other limiting factors is important. Public education is also needed.

Number in Captivity: At least 50 in the United States (Red Data Book, 1973).

TABLE 3.9

Amphianthus pusillus Torrey (Schrophulariaceae) Endangered
Common Name: Amphianthus
Range: Piedmont of Ala., Ga., and S.C.
Plant Type: Annual aquatic herb





Amphianthus pusillus

Description: This is a diminutive plant which can easily be overlooked. It has both floating and submerged leaves. The floating leaves are oppositely arranged on the stem, ovate, 4-8 mm. long, 3-5 mm. wide, and are attached to the submerged leaves by delicate, lax stems. The submerged leaves are arranged in a basal rosette, lanceolate, and less than 1 cm. long. The flowers are small, white, inconspicuous, and are found both among the submerged basal leaves and in between the floating surface leaves. The fruit is a small capsule, 2-3 mm. broad, and 1 mm. long. Flowering period: Mar.-Apr.; fruiting period: Apr.-May.

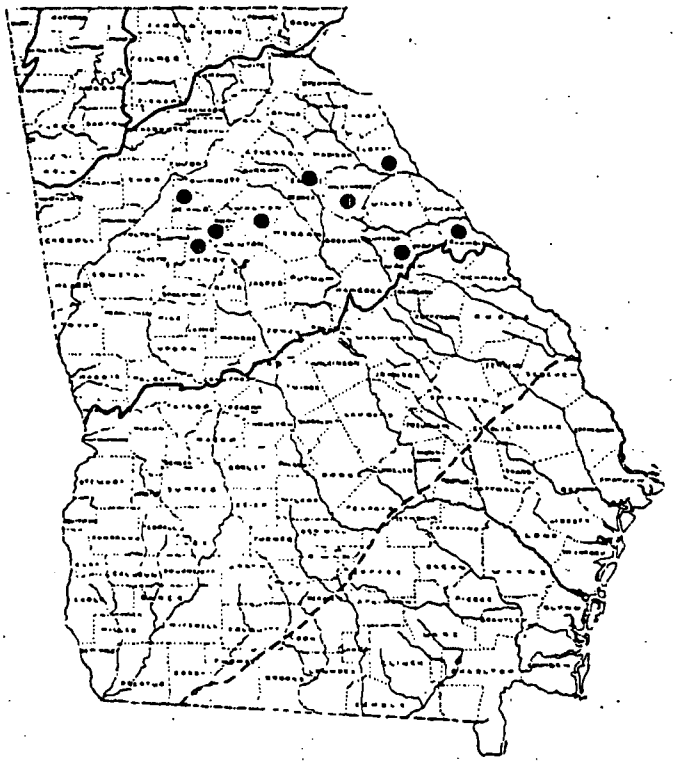
Habitat: Restricted to the shallow, flat-bottomed depression pools of granite outcrops. These pools are usually less than a foot in depth and are completely dry in the summer after the spring rains have evaporated.

Selected Reference(s):

Duncan, W.H. and L.E. Foote. 1975. Wildflowers of the Southeastern United States. pg. 172. Univ. of Ga. Press, Athens, Ga.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1964. Manual of the Vascular Flora of the Carolinas. pg. 937. Univ. of N.C. Press, Chapel Hill, N.C.

Sedum pusillum Michx. (Crassulaceae) Threatened
Common Names: Sedum, and Stonecrop
Range: Piedmont of Ga., N.C., and S.C.
Plant Type: Annual herb



Sedum pusillum

Description: This is a small, succulent plant up to 12 cm. tall that can easily be confused with Diamorpha (Sedum smallii), which is abundant on the granite outcrops. The difference between the two species is only slight; S. pusillum is the larger of the two species and has bluish-green leaves, whereas S. smallii has red leaves. The succulent leaves of S. pusillum are up to 12 mm. long, cylindric, and overlapping. The small white flowers have 4 petals which are 2-3 mm. long. The fruit is a follicle, 3-5 mm. long. Flowering period: Mar.-Apr.; fruiting period: Apr.-May.

Habitat: Restricted to granite outcrops, and is typically found growing among mosses in partial shade under Cedar trees (Juniperus virginiana). This habitat is quite different from the habitat of the other granite outcrop species S. smallii, which grows in shallow soiled depression pits that are fully exposed.

Selected Reference(s):

McVaugh, R. 1943. The vegetation of the granitic flatrocks of the Southeastern United States. Eco. Mono. 13:155.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1964. Manual of the Vascular Flora of the Carolinas, pg. 513. Univ. of N.C. Press, Chapel Hill, N.C.

4.0 WASTE TYPES AND QUANTITIES

4.1 Waste Quantities

Approximately 1200 tons (56 truckloads) of pesticide contaminated soil were removed from the site. Calculations of waste quantities were based on depth of excavation of the contaminated soils and the area to be excavated. Manifest documentation of the material removed from the site provided accurate estimates of waste quantities.

4.2 Waste Disposal Methods and Locations

From approximately 1952 to 1969, Chevron Chemical Co. leased the site and adjacent rail spur and operated an agricultural chemical marketing warehouse and dust formulating plant[9]. During the life of the facility, cotainerized pesticides were occasionally stored in the back yard area north of the building. It is also assumed that occasional sweeping of the building floors during the life of the facility may have resulted in some pesticide residues being swept out of the buildings loading doors.[9].

4.3 Waste Types

Waste types at the subject site consist of organo-chlorinated pesticides present in the surrounding soils at the site. The pesticides present at the site were DDT, DDD, DDE, Endrin, Lindane, BHC and Arsenic (see Appendix B).

5.0 LABORATORY DATA

(see Appendix B)

5.1 Summary

Composite soil samples were collected in 12 sections of the excavated area to determine the effectiveness of the cleanup operations. Samples were split with Chevron's contract lab, Ecology and Environment Inc. Georgia EPD officials tested sections 1,4 and 8 for pesticide residues by using a gas chromatograph equipped with an electron capture detector. DDT levels were found to be at least one order of magnitude lower after remedial actions were conducted at the site (see Appendix B) (fig. 3)

5.2 Quality Assurance Review

Georgia EPD officials were not present during the May 6, 1984 sampling of the excavated areas. Sample splits were taken, but not received until May 7, 1984. Georgia EPD laboratory analysis and Ecology and Environment Inc. laboratory analysis are relatively consistent. Some inconsistency is due to non-homogenity in compositing the sample splits.

6.0 TOXICOLOGICAL/CHEMICAL CHARACTERISTICS

Several chemicals have been identified and characterized by their physical and chemical properties at the former Chevron facility.

DDT - C_{14} H_9 Cl_5 (Dichloro diphenyl trichloroethane) is a colorless or white powder, odorless, insoluble in water and not compatible with alkaline materials. The route of entry into the body is by inhalation, skin absorption, ingestion and skin or eye contact[8].

Acute Tox Data is as follows:

Oral-lowest published toxic dose-(Infant) is 150 mg/kg
Oral-lowest published toxic dose (Humans) is 16 mg/kg (CNS damage)
Oral-lowest published toxic dose (Rat) is 113 mg/kg
Dermal-LD_{50} (Rabbit) is 300 mg/kg

Toxicity Summary - high via oral and dermal routes. Acute Oral Toxicity for man is 250 mg/kg[8].

DDT is a highly persistent organic compound with a persistence value of 3 as well as a toxicity value of 3 according to the HRS.

2,4-DDD - ($C_{14}H_{10}Cl_4$) (Dichlorodiphenyl dichloroethane) is one of the breakdown products of DDT.

Acute Tox. Data is as follows:

Oral LD_{50} (Rat) is 113 mg/kg
Dermal LD_{50} (Rabbit) is 1200 mg/kg

Toxicity Summary - High via oral. DDD is dangerous when heated to decomp, in that it emits highly toxic fumes of chlorides[8]. It's toxic by ingestion, inhalation and skin absorption. Uses are as dusts and wettable powders for contact control of leaf rollers and other insects[7].

DDE - Dichlorodiphenyl dichloro ethylene is a degradation product of DDT, and found as an impurity in DDT residues[8].

Aldrin - $C_{12}H_8Cl_6$

Acute Tox Data is as follows:

Oral LD_{50} (Rat) is 55 mg/kg
Dermal LD_{50} (Rat) is > 200 mg/kg

Toxicity Summary - High via oral, dermal and CNS routes. ingestion, inhalation, or absorptions of this material into the body can cause irritability and convulsions from 1 to 5 hours[8].

Properties - Brown to white crystalline solid, insoluble in water, a stereoisomer of dieldrin.

Uses - Insecticide

Tolerance - 0.25 mg per cubic meter of air[7].

Dieldrin - $C_{12}H_{10}OCl_6$

Properties - Light tan flaked solid, insoluble in water, compatible with most fertilizers, herbicides and insecticides[7].

Uses - Insecticide

Hazard - Highly toxic by ingestion, inhalation and skin absorption. Penetrates intact skin[8]

Tolerance - 0.24 mg/m^3 of air.

Exposure to oral dosage that exceed 10 mg/kg results in acutely ill effects. Oral LD_{50} of Dieldrin for (rats) is 40-50 mg/kg which indicates a toxicity roughly five times that of DDT[8].

Dermal LD_{50} for (Rats) is 60 mg/kg female
90 mg/kg male

Acute dermal toxicity is roughly four times that of DDT.

Endrin - C_{12} H_8 O Cl_6

A white crystalline powder that is insoluble in water. Highly toxic by inhalation and skin absorption[8].

Tolerance is .1 mg/m^3 of air.

Acute Tox Data is oral LD_{50} (Rat is 3 mg/kg
dermal LD_{50} (Rat) is 15 mg/kg

Toxicity Summary: Extremely high via oral and very very high via dermal routes.

High toxicity to birds, fish, man

Does not accumulate in human tissue[8].

Lindane - C_6 H_6 Cl_6 - Gamma - Benzene Hexachloride

White crystalline powder used as a pesticide.

Acute Tox. Data is as follows:

Oral LD_{50} (cattle) 5-25 mg/kg
Oral LD_{50} (Rat) 88 mg/kg
Dermal LD_{50} (Rat) 500 mg/kg
Dermal LD_{50} (Rabbit) 50 mg/kg

LD for a child was 188 mg/kg via oral route.

Toxicity Summary: Hexachloro cyclo hexane, a toxic organo-chlorine pesticide which is persistent in the environment and accumulates in mammalian tissue[8].

Dangerous when heated to decomp, emits highly toxic fumes of phosgene[8].

Lead Arsenate - Pb_3 $(AsO_4)_2$

Properties: White crystals. Soluble in nitric acid; insoluble in water.

Uses: Insecticide, herbicide

Hazard: Highly toxic. Tolerance as (Pb), 0.15 mg per cubic meter of air.

Acute Tox Data is as follows:

Oral - lowest published lethal dose (Human) = 1.4 mg/kg
Oral - LD_{50} (Rat) = 100 mg/kg

Toxicity Summary: High via oral route.

Disaster Hazard: Dangerous, on heating, emits highly toxic fumes.

*All toxicological data taken from references 7 and 8.

APPENDIX A

County Name WALTON
Picture No 1 of 2
Site Name H.m. Arnold Company
Date 5-1-84 Weather Partly Cloud
Direction Facing NW
Photographer Jeff Williams
Program RAU (IEHWMP)
Explanation: Photograph of the decontamination station that was set up to clean trucks transporting the waste material off site Note excavated pile of soil in the background.

County Name WALTON
Picture No 2 of 2
Site Name H.m Arnold Company
Date 5-1-84 Weather Partly Cloud
Direction Facing East
Photographer Jeff Williams
Program RAU (IEHWMP)
Explanation: Photograph of the culvert that drains all materials off site. This area had a high percentage of pesticides present and therefore excavated accordingly

County Name WALTON
Picture No 3 of 4
Site Name H.M. Arnold Company
Date 5-10-84 Weather Clear
Direction Facing South
Photographer JEFF Williams
Program RAU (IHWMP)
Explanation: Photograph of the drainage ditch that lies parallel to the railroad tracks.
Other: Excavation of the soils surrounding the culvert at the site was completed to insure against future contamination.

County Name WALTON
Picture No 4 of 4
Site Name H.M. Arnold Company
Date 5-10-84 Weather Clear
Direction Facing North West
Photographer JEFF Williams
Program RAU (IHWMP)
Explanation: Photograph of the "building pad" area to the west of the warehouse building.
Other: Structures in picture are where the decontamination station was set up. Which is in upper right of photograph.

5

County Name WALTON
Picture No 1 of 4
Site Name H.M. Arnold Compound
Date 5-10-94 Weather Clear
Direction Facing N.E.
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph of the excavated area North of the warehouse building. The area
Other: excavated has been leveled off and capped for proper drainage.

County Name WALTON
Picture No 2 of 4
Site Name H.M. Arnold Compound
Date 5-10-94 Weather Clear
Direction Facing West
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph at the rear of the site showing extent of excavations and
Other: Note the clay like filler material that is covered by a layer of gravel for proper drainage.

APPENDIX B

LAND PROTECTION BRANCH
HAZARDOUS WASTE ANALYSIS REQUEST

DATE: 5-7-84 PROJECT: Chevron Agrichemical Co COLLECTOR: JC Ft Williams

NO. SAMPLES: 3 LOG NOS. 758-760 LIQUID ____ SOLID ____ SOIL ✓

CAUSTIC ____ ACID ____ SOLVENT ____ UNKNOWN ____ SLUDGE ____

INFORMATION FOUND: Suspected DDT, DDD, Lindane pesticide residues within the soil

HAZARDOUS WASTE NOS. CERCLA Cleanup - Unregulated PESTICIDE CONTAMINATED

HAZARDOUS HANDLING: Low Hazard

WORK PRIORITY (CRITICAL NEED) Normal

METALS ANALYSES

	TOT	DIS		
METALS (DW NO Hg)	☐	☐	EP METALS (DW NO Hg) ☐	100X ☐ 30X ☐
METALS (DW WITH Hg)	☐	☐	EP METALS (DW WITH Hg)	

	TOT	DIS		TOT	DIS				
NICKEL	☐	☐	CADMIUM	☐	☐	EP NICKEL	☐	EP CADMIUM	☐
ARSENIC	☐	☐	LEAD	☐	☐	EP ARSENIC	☐	EP LEAD	☐
CHROMIUM	☐	☐	MERCURY	☐	☐	EP CHROMIUM	☐	EP MERCURY	☐
CHROM-HEX	☐	☐	SELENIUM	☐	☐	EP CHROM-HEX	☐	EP SELENIUM	☐
____	☐	☐	____	☐	☐	____	☐	____	☐

SPECIFIC ANALYSES

pH	☐	SULFIDE	☐	% SOLIDS	☐ ____ ☐
FLASH PT	☐	SP.COND.	☐	TOT. PHENOLS	☐ ____ ☐
CYANIDE TOT.	☐	TOC	☐	CHLORIDE	☐ ____ ☐
CYANIDE AM.	☐	TOH	☐	FLUORIDE	☐ ____ ☐

ORGANIC ANALYSES

PESTICIDE SCREEN (EC)	☑	GC-MS ACID EXTRACTABLES	☐
PCB	☐	GC-MS BASE/NEUTRALS	☐
VOLATILE ORGANICS (VOA)	☐		

SPECIFIC ORGANICS: ~~Chlorinated Hydrocarbons~~

APPROVED: S Shaw-Cf 17 AUTHORIZED: ____

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

LABORATORY REPORT

SAMPLE DATE: 5-7-84 PROJECT: Chevron Agrichemical Co. COLLECTOR: JPFK Wilkins

HW LOG NO.

DATE REC'D 5-8-84 LABEL

TIME REC'D 1600 hrs

REC'D BY: H Lanford

DEL BY:

David Lanford
LABORATORY MANAGER

DATE:

PARAMETERS	LAB NO.	758	759	760		
		CAS 1	CAS 4	CAS 8		
		Soil Area 1	Soil Area 4	Soil Area 8		
α BHC	ug/kg dry	<1	1050	14		
β BHC	" "	<1	690	8		
Heptachlor	" "	1.4	2470	47		
Δ BHC	" "	<1	370	13		
p,p' DDT	" "	<1	26,900	790		
o,p' DDT	" "	<1	6400	190		
p,p' DDD	" "	<1	950	140		
p,p' DDE	" "	<1	510	30		

REMARKS:

IT CORPORATION

SAMPLE CHAIN OF CUSTODY FORM

Date Sample Taken: 5/6/84 Sample Number: GF9148, GF9150-6

Time Sample Taken: 1pm IT Lab Number:

Person Taking Sample: John Ragsdale

Sample Location: 137 East Fambrough Street, Monroe GA previous chevron Agri Chemical plant

Reason For Sampling: Contaminated soil Excavation and disposal of soil-

Other Related Samples (Taken by IT or other organization):

Type of Sample: ☐ Liquid ☐ Gas ☐ Sludge ☑ Other (specify): soil

Container Size: 16 oz Container Type: Glass

Quantity of Sample Taken: 1 16oz jar

Person whom results, original of this form and remaining sample should be returned t

SAMPLE TRANSFER

		(Name)	(Organization)	(Date/Time)
1	Relinquished by:	John W Ragsdale Jr.	IT Corp	5/7/84 11 am
	Received by:	Jeffrey M Williams	GA DNR	5/7/84 11 AM
2	Relinquished by:			
	Received by:			
3	Relinquished by:			
	Received by:			

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH

CHAIN OF CUSTODY

FACILITY: H.M. Arnold Co. - Chevron Agri. Co

LOCATION: 137 E Fourth [illegible]

SAMPLE #	LOG #	LAB I.D.	DESCRIPTION	COLLECTED BY (Name)	DATE	TIME
AS1	758		Soil Area 1	Jeff Williams	5-7-84	[illegible]
AS7	759		Soil Area 4	Jeff Williams	5-7-84	[illegible]
AS8	760		Soil Area 8	Jeff Williams	5-7-84	[illegible]
			RECEIVED			
			MAY 9 1984			

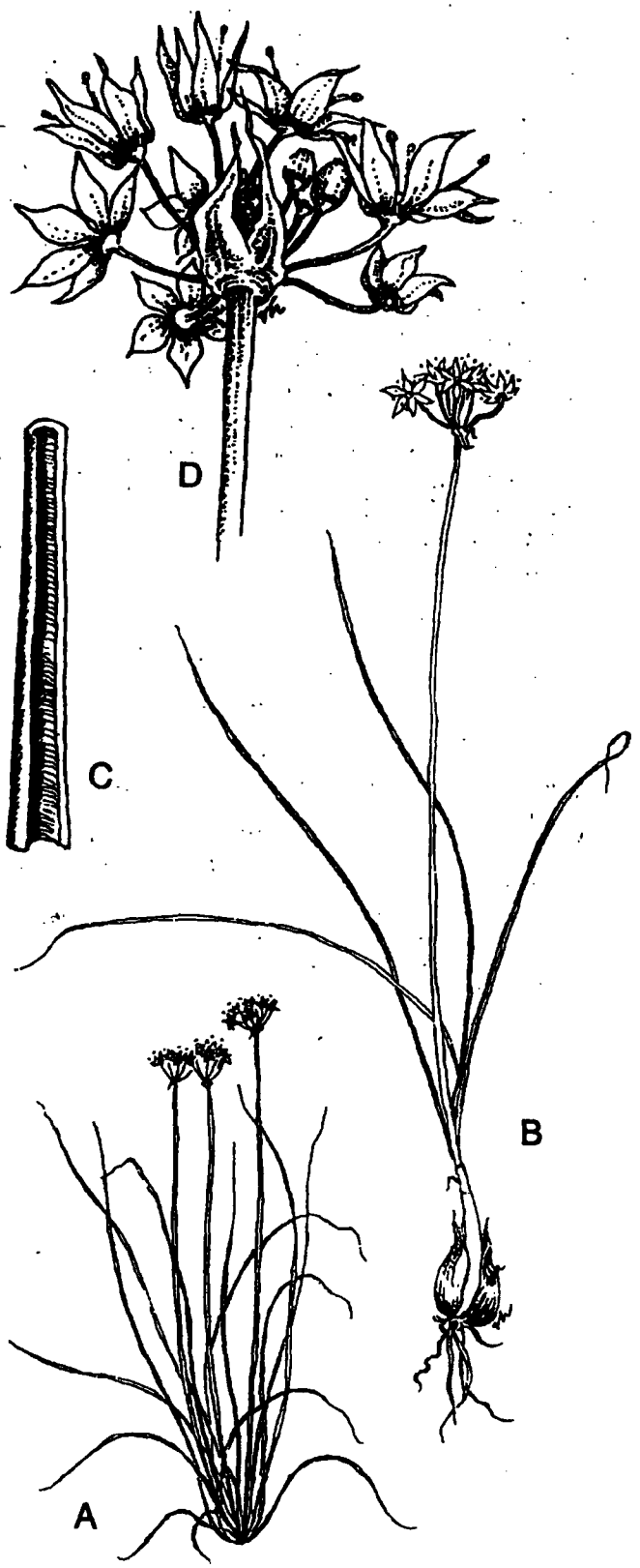
TRANSFER RECORD

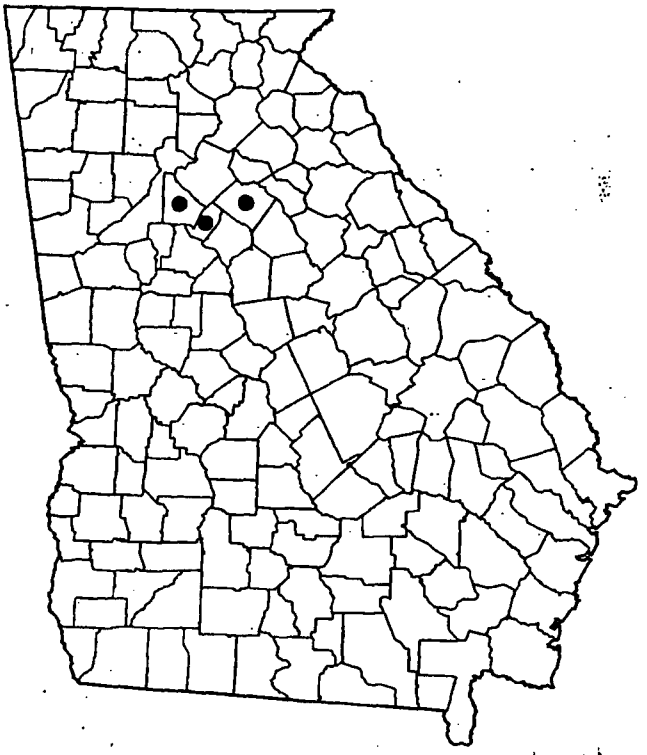
TRANSFERRED BY (Name)	TO (Name) (IF FINAL: Lab Name)	DATE	TIME	METHOD OF TRANSFER	RECEIVED BY (Name)	DATE
Jeffrey M. Williams	Shirley Maxwell	5-7-84		HAND	Harold Langford	
Shirley Maxwell	EPD lab.	5/7/84		Land		

ANALYSES REQUESTED: Pesticide Scan (EC) method on CAS 1 CAS 4 CAS 8

Flatrock Onion

Lily Family, LILIACEAE





LEGAL STATUS:
State: THREATENED
Federal: CANDIDATE

SYNONYMY: None in current usage.

RANGE: Cumberland Plateau (Little River Canyon area) of northeastern Alabama; also Piedmont Plateau of northcentral Georgia. Recorded from three counties in Georgia (see map).

ILLUSTRATION: (A) cluster of stems, 0.25×; (B) plant habit, 0.5×; (C) portion of leaf, showing channel on upper or inward surface, 5×; (D) inflorescence, with single-veined bracts directly below the flower cluster, 2×. Source: original drawing by Vicky Holifield.

DESCRIPTION: Perennial herb with typical onion habit and odor. The bulbs have a fibrous coat similar to loose burlap. The leaves are 2–8 (mostly 4–5) per bulb, narrow and grasslike, 20–25 cm long, and to 2 mm wide; somewhat fleshy when fresh, semicircular to flattened in cross-section with a prominent, broad, lengthwise groove on the inward side toward the leafless flowering stem (scape). The flowering stem is

round in cross section, leafless, topped by a cluster (umbel) of 15–25 flowers borne out of a sheath that is paper-thin, translucent, and splits somewhat tardily into three, faintly single-veined bracts (see illustration). The flowers have three sepals and three petals, all similar (tepals), each 5–6 mm long, narrowly elliptic, and appearing white with a pinkish tinge, intensified at the very base of the tepal. The tepals remain spreading above the horizontal, thus the flower appears widely bell-shaped (open-campanulate) during flowering. The young fruit is greenish and 3-lobed, the summit with an inconspicuous raised band between each lobe, forming a crest. The mature fruit is a capsule resembling a rounded, 3-cornered hat, 3–4 mm in diameter, with a flattened crest between each lobe. **Flowering period**: mid-May to early June, occasionally to late June; **fruiting period**: mid-June to mid-July. **Best search time**: during flowering, since leaves tend to disappear rapidly after flowering.

HABITAT: Found on seepy edges of vegetation mats on outcrops of a type of granitic rock confined to central Georgia (Lithonia Gneiss); commonly associated with sundrops (*Oenothera fruticosa*), Cuthbert onion (*Allium cuthbertii*), sunnybells (*Schoenolirion croceum*), wooly ragwort (*Senecio tomentosus*), and broomsedge (*Andropogon virginicus*).

SPECIAL IDENTIFICATION FEATURES: There are three other native onions or onion-like plants found on granite outcrops in Georgia. The first two have unmistakable onion odors when leaves or bulbs are crushed. Cuthbert onion (*Allium cuthbertii*) generally has leaves 3–5 mm wide and only 2–3 leaves per bulb; flowers with reflexed tepals; and fruits with emerald green, knobby crests. Canada onion (*A. canadense* var. *canadense*) produces bulblets in place of many or all of the flowers. In addition, both of these species have bracts at the base of the flower clusters with more than one faint vein each. A third species, known as false garlic (*Nothoscordum bivalve*) resembles the onions discussed here, but lacks the onion odor. In contrast, besides its onion odor, *Allium speculae* is characterized by narrower leaves (2 mm wide at most) and more leaves per bulb (mostly four or five); flowers pinkish near the base with spreading tepals; bracts at the base of the flower clusters single-veined; and fruits with flattened crests.

MANAGEMENT RECOMMENDATIONS: Avoid disturbance, such as from vehicular traffic.

REMARKS: Carroll Wood made the first collection of this species at Little River Canyon, DeKalb County, Alabama in 1955. Marion Ownbey and Hannah C. Aase described it in 1959. Since then it has been found at about ten other locations in the canyon and along the rim. In 1982 James Allison and Michael Murphy discovered it in abundance at a site about 100 miles to the east and south in Walton County, Georgia. It has since been found on seven other granite outcrops in Georgia. Opinions vary as to the botanical family to which the onions (including garlic and chives), belong. Although placed in the lily family (Liliaceae) by Arthur Cronquist, both Armen Takhtajan and Robert Thorne consider the onions to constitute a separate family (Alliaceae). The ongoing Flora of North America Project follows Cronquist, as do the authors of *Protected Plants of Georgia*. For a review of these systems of classification, see Flora of North America Editorial Committee (1993). *Allium speculae* is rare throughout its limited range and in Georgia it is also a rare disjunct.

SELECTED REFERENCES:

Allison, J. R. 1989. Status report on *Allium speculae* Ownbey & Aase in Georgia. Unpublished report for the United States Fish and Wildlife Service, Field Office, Jackson, Mississippi. 27 pp.

Flora of North America Editorial Committee. 1993. Flora of North America. Volume 1. Introduction. Oxford University Press, New York. 372 pp.

Ownbey, M. and H. C. Aase. 1959. *Allium speculae*, a new species of the *Allium canadense* alliance from Alabama. Rhodora 61:70–72.

Whetstone, R. D. 1988. Status report on *Allium speculae* (Liliaceae). Unpublished report for the United States Fish and Wildlife Service, Field Office, Jackson, Mississippi. 27 pp., maps.

Amphianthus pusillus Torrey

Little Amphianthus, Pool Sprite, Snorkelwort

Figwort Family, SCROPHULARIACEAE

LEGAL STATUS:
State: THREATENED
Federal: THREATENED

SYNONYMY: None in current usage.

RANGE: Piedmont Plateau from Alabama to South Carolina. Recorded from 17 counties in Georgia (see map).

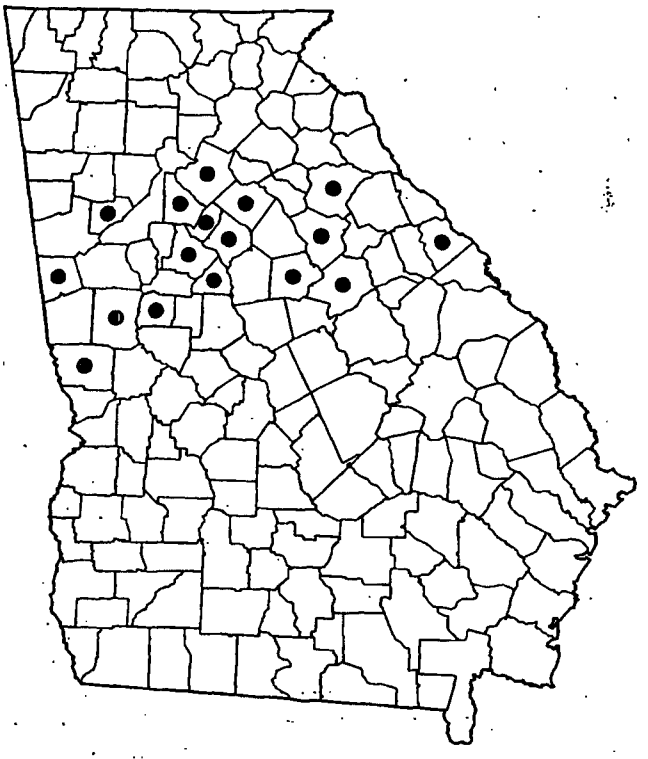
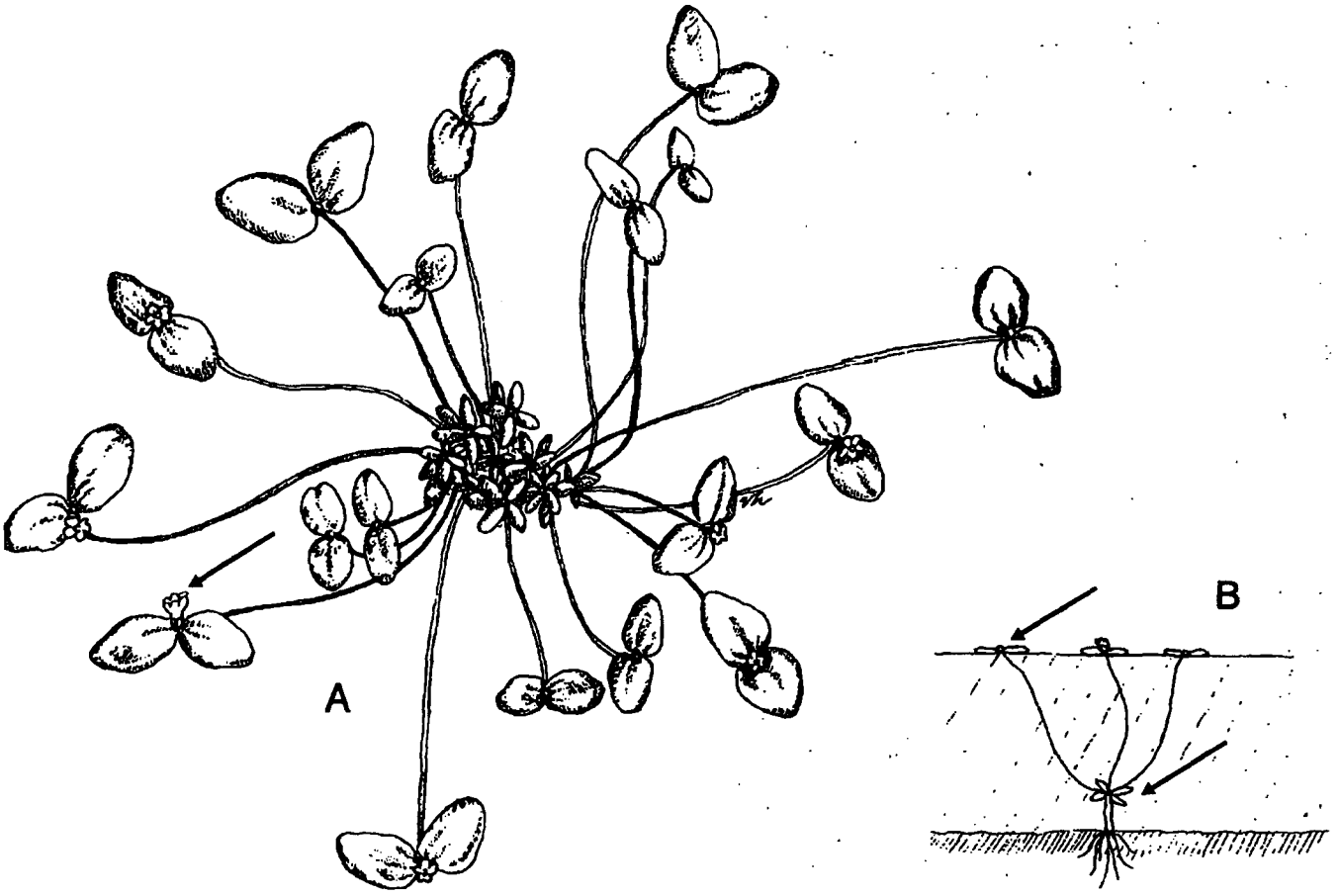


ILLUSTRATION: (A) plant habit, top view, with two types of leaves, 2×; note tiny flower; (B) profile sketch of plant in standing water, 0.75×; note floating leaves in pairs and submerged leaves in a rosette. Source: original drawing by Vicky Holifield.

DESCRIPTION: Annual herb. This is a diminutive plant easily overlooked. It has both floating and submerged leaves. The floating leaves are paired, ovate, 4–8 mm long, 3–5 mm wide, and attached to the submerged plant base by threadlike stems. The submerged leaves are clustered atop a short (6 mm or less) stem, are lanceolate, and less than



1 cm long. The flowers are small, inconspicuous, white to pale violet, and found both among the submerged leaves and between the floating surface leaves. The fruit is a shallowly bilobed capsule, 1–2 mm long, 2–3 mm broad, with a few seeds that are oblong, slightly curved, about 1 mm long, and dark brown to black. **Flowering period:** March to April; **fruiting period:** April to May. **Best search time:** during flowering or fruiting, since plants disintegrate rapidly after fruiting.

HABITAT: *Restricted to shallow, flat-bottomed* depressions on granitic outcrops, where water collects after a rain. These depressions are less than one foot in depth, are entirely rock-rimmed, and usually contain soil at least 2 cm deep. They may be dry much of the summer, except during rainy periods. The depressions, sometimes called vernal pools, solution pits or weather pits, are formed naturally by erosion over millions of years.

SPECIAL IDENTIFICATION FEATURES: No other Georgia plant resembles pool sprite when in flower. Water starwort (*Callitriche heterophylla*) may be an associate, especially in less pristine pools, and also produces two types of leaves. The water starwort has longer, leafier stems, and, toward the upper stem, the leaves tend to form a floating rosette. The underwater leaves of *Amphianthus* only form a rosette atop a short seedling stem (see illustration). The floating leaves of *Amphianthus* are in single pairs, terminating a delicate, threadlike stem.

MANAGEMENT RECOMMENDATIONS: Because the microhabitat of *Amphianthus* is naturally quite stable—very slow to undergo change—*Amphianthus* is not adapted to withstand any habitat modification. Therefore avoid disturbance of any kind, such as from grazing animals or vehicular traffic.

REMARKS: Melines Conklin Leavenworth (1796–1862) made the first collection of this species in 1836, in Newton or Rockdale County. Leavenworth was an army surgeon and talented amateur botanist, in whose honor John Torrey named the genus of another of our protected plants, least gladecress (*Leavenworthia exigua*). *Amphianthus pusillus* is the sole species within the genus (monotypic genus). After extensive searches it has been found at about 65 localities, the vast majority of them with only one or two small pools (with areas of 1–2 square meters) that support it. At least eight populations have been eradicated, mostly through quarrying of granite outcrops, its sole habitat. *Amphianthus* is rare throughout its range and is suffering continued habitat loss.

SELECTED REFERENCES:

Allison, J. R. 1993. Recovery plan for three granite outcrop plant species. United States Fish and Wildlife Service, Jackson, Mississippi. 41 pp.

Duncan, W. H. and L. E. Foote. 1975. Wildflowers of the Southeastern United States. University of Georgia Press, Athens. 296 pp.

McVaugh, R. 1943. The vegetation of the granitic flatrocks of the southeastern United States. Ecological Monographs 13:119–166.

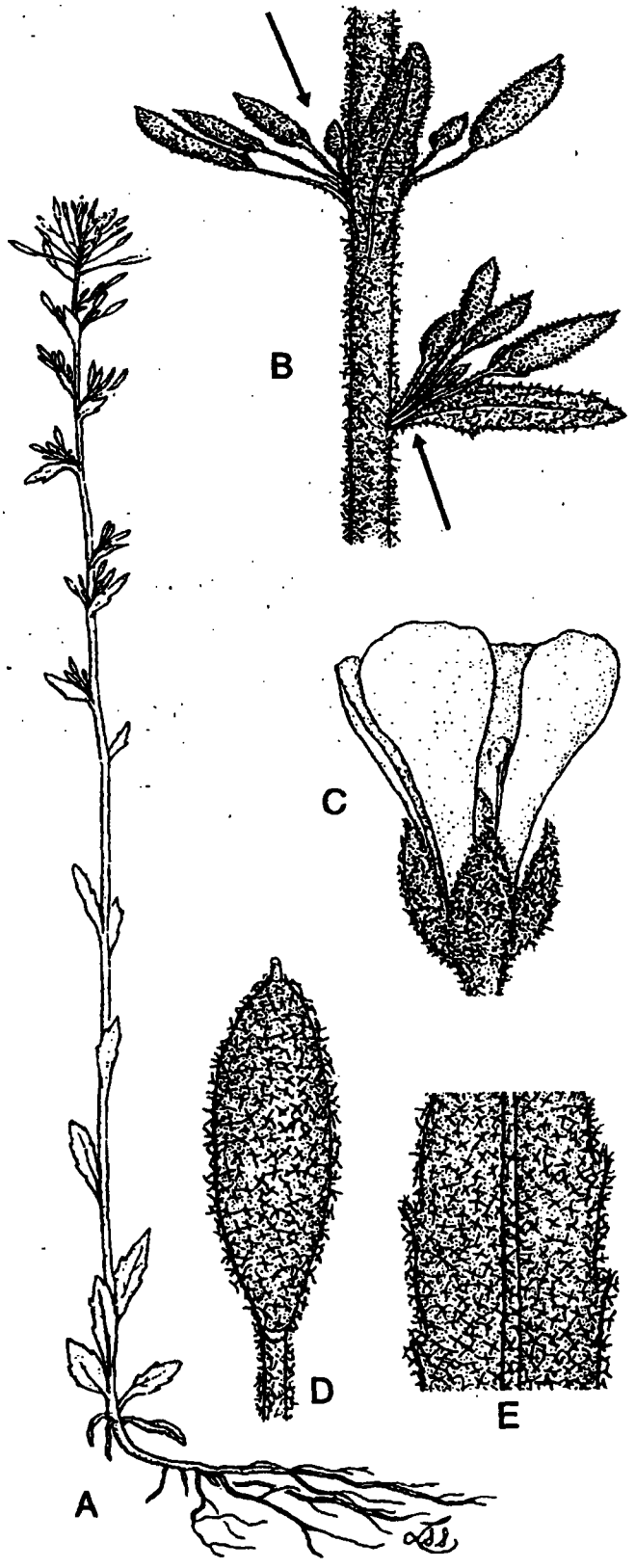
McVaugh, R. and J. H. Pyron. 1937. The distribution of *Amphianthus* in Georgia. Castanea 2:104–105.

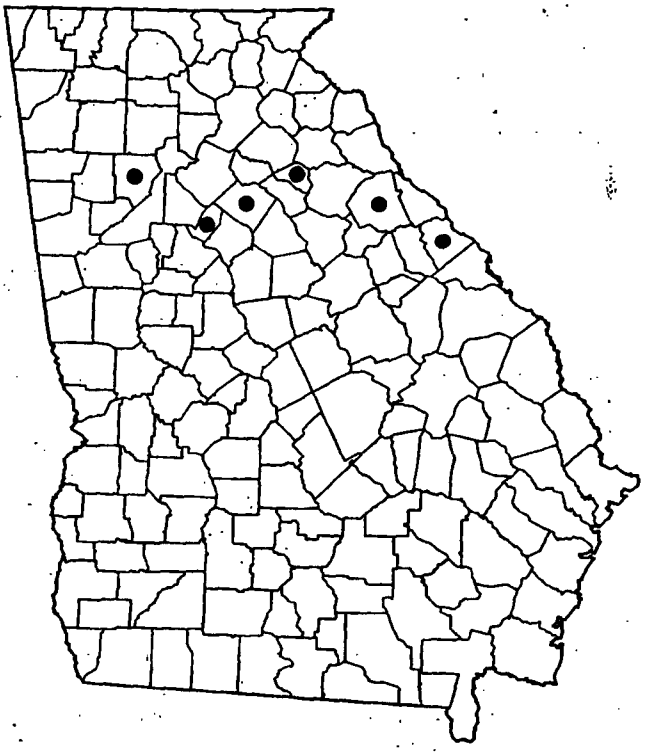
Pennell, F. W. 1935. The Scrophulariaceae of Eastern Temperate North America. Monograph Number 1. Academy of Natural Sciences of Philadelphia. 650 pp.

Radford, A. E., H. E. Ahles, and C. R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. University of North Carolina Press, Chapel Hill. 1183 pp.

Draba aprica Beadle

Sun-loving Draba, Open-ground Draba, Granite Whitlow-grass Mustard Family, BRASSICACEAE





LEGAL STATUS:
State: ENDANGERED
Federal: None

SYNONYMY: None in current usage.

RANGE: Ozark Plateau of Arkansas and southern Missouri; disjunct in the Piedmont of Georgia and South Carolina. Recorded from six counties in Georgia (see map).

ILLUSTRATION: (A) plant habit, 1×; (B) stem, upper portion, with fruit clusters in leaf axils, 3×; (C) flower, profile, 15×; (D) fruit, 10×; note tiny branched hairs; (E) leaf, underside, 15×, also with tiny branched hairs. Source: Gaddy (1980), drawn by Susan Sizemore and used with permission.

DESCRIPTION: annual herb. *Draba aprica* is 8–20 cm tall; the stems, leaves, sepals, and fruits are covered with tiny, branched, stalkless hairs (best seen with 10× lens). The basal leaves are narrowly obovate, elliptic, or lanceolate, have 1–2 teeth per side, and are 1.5–3.0 cm long; the stem leaves are alternate, widely spaced, and similar in size and shape to the basal leaves. The flowers

are produced at the leaf bases in congested, axillary clusters and also terminally. The four white petals are up to 3 mm long, and rounded to slightly notched at the apex. The fruit is a bivalved pod, narrowly ellipsoid, 2–6 mm long, 0.8–1.2 mm wide, covered with minute, branched or star-shaped hairs (must use 10× hand lens). **Flowering period:** March to April; **fruiting period:** April to May. **Best search time:** during fruiting, since branched hairs on fruits are diagnostic.

HABITAT: Found in shallow soils on granitic outcrops, especially beneath widely scattered, old-growth eastern redcedar (*Juniperus virginiana*).

SPECIAL IDENTIFICATION FEATURES: On Georgia's granitic outcrops there are three drabas. Vernal whitlow-grass (*Draba verna* or *Erophila verna*), has basal leaves only, strongly notched (cleft) petals, and broader (2–3 mm), smooth fruits. Short-fruited draba (*D. brachycarpa*) closely resembles *D. aprica*, but has smooth fruit (lacking hairs), tends to branch more freely, and produces more elongated axillary flower clusters (the axillary branchlets well over 1 cm in length). In contrast, *D. aprica* has fruits covered with branched hairs, and has congested axillary flower clusters (the axillary branchlets 1 cm or less in length).

MANAGEMENT RECOMMENDATIONS: Control exotic weeds, especially Japanese honeysuckle.

REMARKS: This species was first collected in 1819 from Arkansas by Thomas Nuttall, and described as *Draba brachycarpa* var. *fastigiata* in 1838. Nuttall (1786–1859) was a Philadelphia botanist and ornithologist who discovered many new species of plants, especially in the midwestern states. In 1901 collectors of the Biltmore Herbarium collected a *Draba* at Kennesaw Mountain National Battlefield Park, Cobb County, Georgia; C. D. Beadle described *D. aprica* in 1913, based on this collection. In 1961 the foremost American authority on the mustard family, Reed C. Rollins, suggested that both names represented the same, distinct species. The accepted name, therefore, is *D. aprica*, the first (and only) name for the plant published previously at the level of species. It is probable that most of the fruits produced by this species are the product of self-fertilization rather than cross-pollination. Even when the tiny flowers are at their most conspicuous they would appear to be poor attractants to insect visitors. The more so since plants of this species seldom form the dense patches common with some other granite outcrop plants, such as granite stonecrop (*Sedum pusillum*). Such cross-pollination as does occur surely takes place mostly early in the flowering season, for the petals tend to be best developed on the earlier flowers of an individual plant. As the brief flowering season progresses, the petals of the newer flowers tend to be progressively shorter, and by late in the season the flowers lack petals altogether. In the smallest plants petals may not develop at all. *Draba aprica* is rare throughout its range. In the Southeast it is known from only nine sites in Georgia and approximately three in South Carolina. Several of these populations face imminent peril. It is slightly more abundant on the Ozark Plateau. *Draba aprica* is a rare disjunct in Georgia, one that has sustained significant habitat loss in the Southeast due chiefly to quarrying of granite outcrops.

SELECTED REFERENCES:

Fernald, M. L. 1934. *Draba* in temperate northeastern America. Rhodora 34:361–363.

Gaddy, L. L. 1980. A status survey of *Draba aprica* Beadle. United States Fish and Wildlife Service, Field Office, Asheville, North Carolina. 31 pp.

Radford, A. E., H. E. Ahles, and C. R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. University of North Carolina Press, Chapel Hill. 1183 pp.

Rickett, H. W. 1966. Wild Flowers of the United States. Volume 2. The Southeastern States. McGraw-Hill, New York. 688 pp.

Steyermark, J. A. 1963. Flora of Missouri. Iowa State University Press, Ames. 1725 pp.

Sedum pusillum Michaux

Puck's Orpine, Granite Stonecrop, Dwarf Stonecrop

Stonecrop Family, CRASSULACEAE

LEGAL STATUS:
State: THREATENED
Federal: None

SYNONYMY: None in current usage.

RANGE: Piedmont Plateau of Georgia, South Carolina and southcentral North Carolina. Recorded from 14 counties in Georgia (see map).

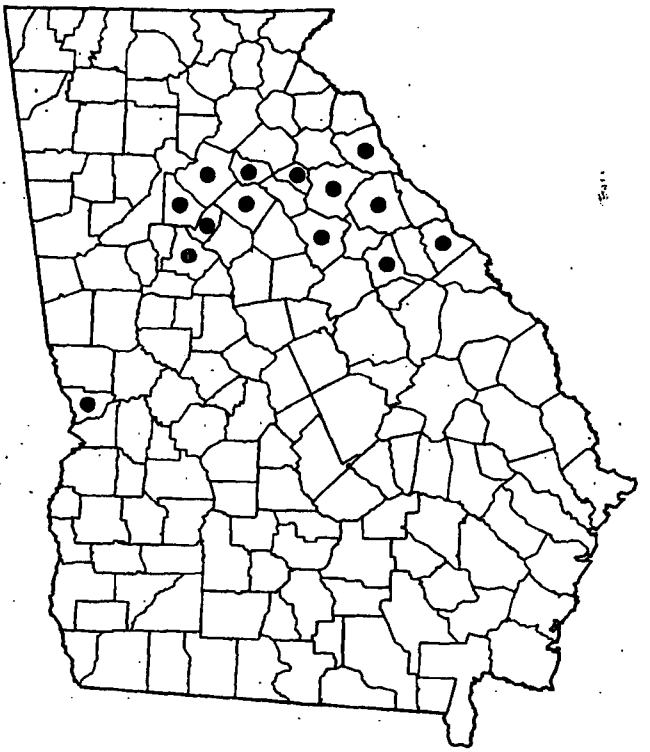
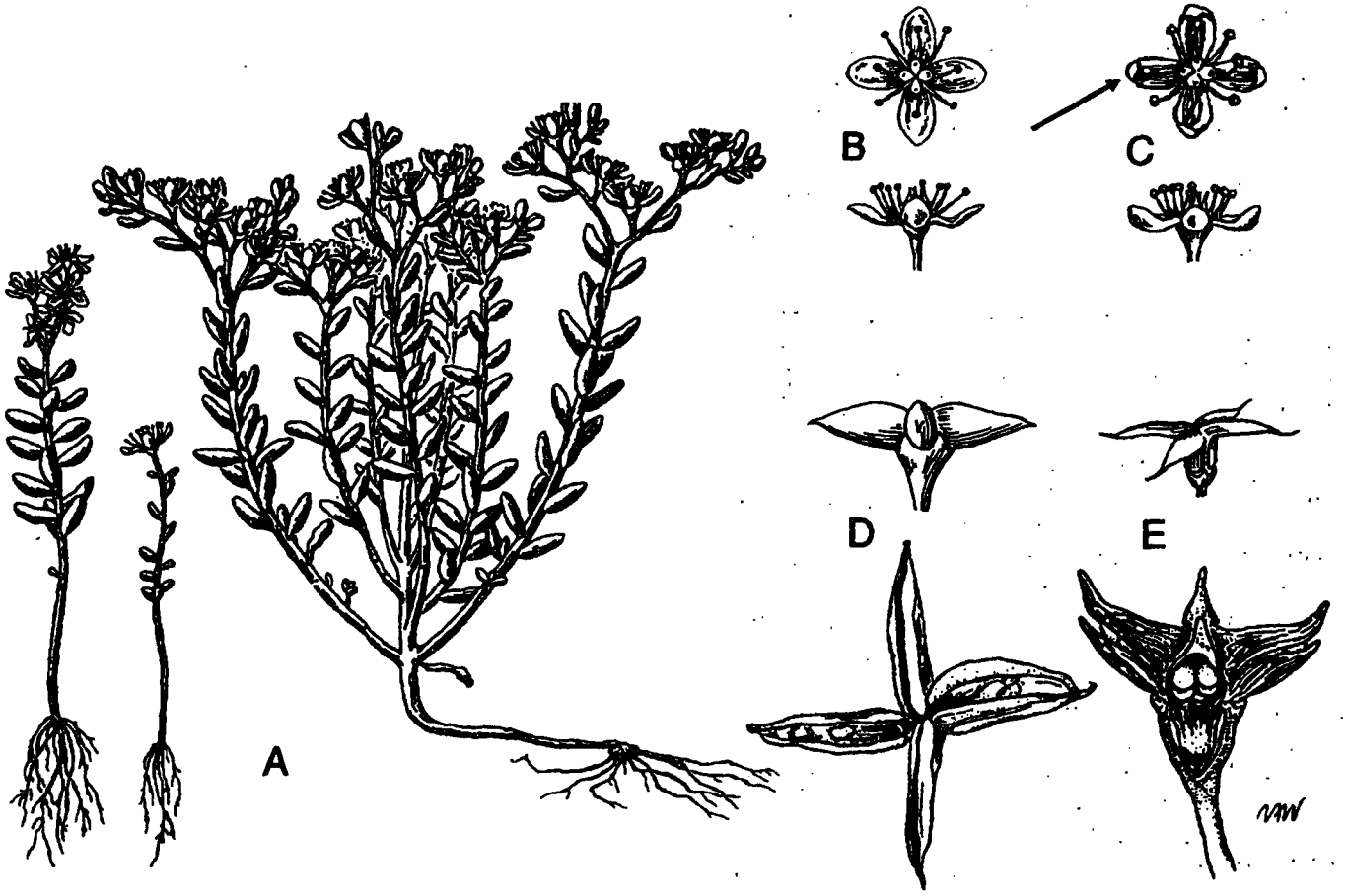


ILLUSTRATION: (A) plant habit, variable sizes, 1×; (B) flower, *Sedum pusillum*, top and side views, 2.5×; (C) flower, *Diamorpha smallii*, top and side views; note cupped or hooded petal tips, 2.5×; (D) fruit, *S. pusillum*, opening by slits on top side, 4×; (E) fruit, *Diamorpha*, opening by flaps on underside, 4×. Source: (A) original drawing by Vicky Holifield; (B, C, D-top, E-top) Clausen (1975), drawn by Elfriede Abbe; (D-below, E-below) Spongberg (1978), drawn by Karen S. Velmurer and Rachel A. Wheeler, and used with permission.



DESCRIPTION: Annual herb. *Sedum pusillum* is a small, succulent plant usually 4–8 cm tall, unbranched to few-branched. The succulent leaves are spirally arranged, nearly cylindrical, 4–12 mm long, and 1.5–2.0 mm thick. The small, white flowers are arranged in a cyme, and have four petals, each 3–4 mm long. The eight stamens have reddish-brown pollen sacs. The fruit is cross-shaped, each pod-like arm is 3–5 mm long, splitting longitudinally along the top. **Flowering period:** March to April; **fruiting period:** April to May. **Best search time:** during fruiting, since how the fruit opens is diagnostic.

HABITAT: Found growing on granitic outcrops among mosses in partial shade, usually in leaf litter and mats of mosses (especially *Hedwigia ciliata*, sometimes *Grimmia laevigata*), under old, gnarled eastern redcedar trees (*Juniperus virginiana*).

SPECIAL IDENTIFICATION FEATURES: The infrequent *Sedum pusillum* strongly resembles "red-moss" or elf orpine (*Diamorpha smallii*) which is abundant on virtually all granitic outcrops. *Sedum pusillum* begins to bloom earlier, prefers shade, and has bluish-green leaves, whereas *Diamorpha* begins blooming two weeks later, prefers sun and usually has red leaves. The best distinguishing feature is the fruit. In *Diamorpha* the fruit opens by a small flap on the underside. In contrast, in *Sedum* the fruit opens by a longitudinal slit on the top side.

MANAGEMENT RECOMMENDATIONS: Control exotic weeds, especially Japanese honeysuckle and privet.

REMARKS: André Michaux was the first to collect this species, in April 1795, in Kershaw County, South Carolina. He described it in 1803 in his posthumously published *Flora Boreali-Americana* (*Flora of North America*). *Sedum pusillum* is considered an ancient species with few, if any, close relatives within the genus. So far as known it has the lowest chromosome number in the family (n = 4). It is distinctive enough that Joseph Rose made it a genus all to itself (monotypic genus), *Tetrorum*. Due to its similarity to elf orpine (*Diamorpha smallii*), and because the original collections of both plants came from the same locality, the two were long considered the same species. It was not until 1875, when Asa Gray visited Stone Mountain and saw both species growing near each other, that their distinctiveness was firmly established. *Sedum pusillum* is rare throughout its range, and has sustained significant habitat loss due to extensive quarrying of granite outcrops, including the site where Michaux discovered it.

SELECTED REFERENCES:

Clausen, R. T. 1975. *Sedum* of North America North of the Mexican Plateau. Cornell University Press, Ithaca, New York. 742 pp.

McVaugh, R. 1943. The vegetation of the granitic flatrocks of the southeastern states. Ecological Monographs 13:119–166.

Radford, A. E., H. E. Ahles, and C. R. Bell. 1968. Manual of the Vascular Flora of the Carolinas. University of North Carolina Press, Chapel Hill. 1183 pp.

Spongberg, S. A. 1978. The genera of Crassulaceae in the southeastern United States. Journal of the Arnold Arboretum 59:197–247.

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Mario V.

NUS CORPORATION

1927 LAKESIDE PARKWAY
SUITE 614
TUCKER, GEORGIA 30084
404-938-7710

C-586-4-7-53

May 6, 1987

Mr. Richard D. Green
Emergency and Remedial Response Branch
Waste Management Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Subject: Preliminary HRS Scores
H. M. Arnold Company/Chevron Chemical
(GAD 980556831)
Monroe, Georgia (Walton County)
TDD No. F4-8702-13

Dear Mr. Green:

FIT IV was tasked to develop a preliminary Hazardous Ranking System (HRS) score for the H. M. Arnold Company site in Monroe, Georgia. This site has no current potential for ranking on the National Priorities List (NPL) as set forth in the criteria for scoring the HRS. A background of the supporting factors used in scoring the subject site along with the highest scoring realistic scenario before the remedial action at the site is as follows:

The inactive H. M. Arnold site, which is within the city limits of Monroe, was used as a marketing warehouse and dust formulating plant for chlorinated pesticides such as DDT, Lindane, DDD, Endrin and Dieldrin. From approximately 1957 to 1969, Chevron Chemical Company leased the two-acre site from Mr. Arnold. In 1981, the Chevron Chemical Company reported the subject site to EPA as a potential hazardous waste site, as required via a CERCLA 103c notification. The current operator of the site is Childscapes, Inc., a manufacturer of children's playground equipment (Ga., EPD SI, p.2, 1984).

The Alcovy River provides the main source of drinking water for the town of Monroe, serving over 10,000 residents of Monroe and the surrounding area, with the surface water intake greater than five stream miles from the H.M. Arnold site. There are numerous private ponds less than one mile of the site. There is no surface water on site. The aquifer of concern is at a depth of 170 ft. The unknown quantity of waste has been estimated at a 2-ft. soil depth. The soils at the site have a very high adsorptive capacity with respect to the pesticides involved (Ga., EPD SI p. 5, 1984). There are no wells within three miles of the site, and the waste is characteristically insoluble.

Doc # 1364

There is no evidence to demonstrate an Observed Release, thus the site was evaluated on Route Characteristics for both groundwater and surface water. The containment of waste is considered poor due to unsecure storage of drums and sweepings from the warehouse. The majority of the other factors which combine with these to determine the probability of exposure through releases and the degree of harm or endangerment due to the release are outside of the rating parameters. The Sm score for the H. M. Arnold/Chevron Chemical site is 3.59 (see attached computer printout) which does not meet the required Sm score of 28.50 to be listed on the NPL.

Subsequent remedial action (removal of 1,200 yd^3 of contaminated soil, which was disposed of in a Class I Hazardous Waste Landfill) in 1984 has been performed and approved of by Ga. EPD personnel. No significant contamination of the soils was detected after excavation of the site and no further remedial action should be required at the site (Ga., EPD SI, 1984).

An HRS computer printout has been enclosed for your convenience. If you have any questions regarding this site, please feel free to contact me at NUS Corporation.

Very truly yours,

Bob Hay
Environmental Engineer

Approved: PROFESSIONAL ENGINEER CAMILLA WARREN

Enclosure

cc: Camilla Warren

BH/eaw

HAZARD RANKING SYSTEM SCORING SUMMARY

FOR

H.M.ARNOLD CO./CHEVRON CHEMICAL
EPA SITE NUMBER GAD980556831
MONROE
WALTON COUNTY, GA
EPA REGION: 4

SCORE STATUS: NOT NPL QUALIFIED

SCORED BY BOB HAY
OF NUS CORPORATION
ON 04/21/87

DATE OF THIS REPORT: 04/21/87
DATE OF LAST MODIFICATION: 04/21/87

GROUND WATER ROUTE SCORE	:	2.09
SURFACE WATER ROUTE SCORE	:	5.85
AIR ROUTE SCORE	:	0.00
MIGRATION SCORE	:	3.59

HRS GROUND WATER ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0
2. ROUTE CHARACTERISTICS			
DEPTH TO WATER TABLE	170 FEET		
DEPTH TO BOTTOM OF WASTE	2 FEET		
DEPTH TO AQUIFER OF CONCERN	168 FEET	0	0
PRECIPITATION	50.0 INCHES		
EVAPORATION	0.0 INCHES		
NET PRECIPITATION	50.0 INCHES	3	3
PERMEABILITY	1.0x10-5 CM/SEC	1	1
PHYSICAL STATE		3	3
TOTAL ROUTE CHARACTERISTICS SCORE:			7
3. CONTAINMENT		3	3
4. WASTE CHARACTERISTICS			
TOXICITY/PERSISTENCE:ENDRIN (DRY, SOLUTION)			18
WASTE QUANTITY CUBIC YDS	0		
DRUMS	20		
GALLONS	0		
TONS	0		
TOTAL	5 CU. YDS	1	1
TOTAL WASTE CHARACTERISTICS SCORE:			19
5. TARGETS			
GROUND WATER USE		1	3
DISTANCE TO NEAREST WELL	0 FEET		
AND	MATRIX VALUE	0	0
TOTAL POPULATION SERVED	0 PERSONS		
NUMBER OF HOUSES	0		
NUMBER OF PERSONS	0		
NUMBER OF CONNECTIONS	0		
NUMBER OF IRRIGATED ACRES	0		
TOTAL TARGETS SCORE:			3

GROUND WATER ROUTE SCORE (Sgw) = 2.09

HRS SURFACE WATER ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0
2. ROUTE CHARACTERISTICS			
SITE LOCATED IN SURFACE WATER	NO		
SITE WITHIN CLOSED BASIN	NO		
FACILITY SLOPE	4.0 %		
INTERVENING SLOPE	4.0 %	1	1
24-HOUR RAINFALL	50.0 INCHES	3	3
DISTANCE TO DOWN-SLOPE WATER	1200 FEET	2	2
PHYSICAL STATE	3		3
TOTAL ROUTE CHARACTERISTICS SCORE:			11
3. CONTAINMENT	3		3
4. WASTE CHARACTERISTICS			
TOXICITY/PERSISTENCE:ENDRIN (DRY, SOLUTION)			18
WASTE QUANTITY CUBIC YDS	0		
DRUMS	20		
GALLONS	0		
TONS	0		
TOTAL	5 CU. YDS	1	1
TOTAL WASTE CHARACTERISTICS SCORE:			19
5. TARGETS			
SURFACE WATER USE		2	4
DISTANCE TO SENSITIVE ENVIRONMENTS		0	0
COASTAL WETLANDS	NONE		
FRESH-WATER WETLANDS	NONE		
CRITICAL HABITAT	NONE		
DISTANCE TO STATIC WATER	5279 FEET		
DISTANCE TO WATER SUPPLY INTAKE	18480 FEET		
AND	MATRIX VALUE	0	0
TOTAL POPULATION SERVED	10000		
NUMBER OF HOUSES	0		
NUMBER OF PERSONS	10000		
NUMBER OF CONNECTIONS	0		
NUMBER OF IRRIGATED ACRES	0		
TOTAL TARGETS SCORE:			4

SURFACE WATER ROUTE SCORE (Ssw) = 5.85

HRS AIR ROUTE SCORE

CATEGORY/FACTOR	RAW DATA	ASN. VALUE	SCORE
1. OBSERVED RELEASE	NO	0	0
2. WASTE CHARACTERISTICS			
REACTIVITY:		MATRIX VALUE	
INCOMPATIBILITY			
TOXICITY			
WASTE QUANTITY CUBIC YARDS			
DRUMS			
GALLONS			
TONS			
TOTAL			
TOTAL WASTE CHARACTERISTICS SCORE:			N/A
3. TARGETS			
POPULATION WITHIN 4-MILE RADIUS			
0 to 0.25 mile			
0 to 0.50 mile			
0 to 1.0 mile			
0 to 4.0 miles			
DISTANCE TO SENSITIVE ENVIRONMENTS			
COASTAL WETLANDS			
FRESH-WATER WETLANDS			
CRITICAL HABITAT			
DISTANCE TO LAND USES			
COMMERCIAL/INDUSTRIAL			
PARK/FOREST/RESIDENTIAL			
AGRICULTURAL LAND			
PRIME FARMLAND			
HISTORIC SITE WITHIN VIEW?			
TOTAL TARGETS SCORE:			N/A

AIR ROUTE SCORE (Sa) = 0.00

HAZARD RANKING SYSTEM SCORING CALCULATIONS
FOR
SITE: H.M.ARNOLD CO./CHEVRON CHEMICAL
AS OF 04/21/87

GROUND WATER ROUTE SCORE

ROUTE CHARACTERISTICS		7				
CONTAINMENT	X	3				
WASTE CHARACTERISTICS	X	19				
TARGETS	X	3				
	=	1197	/57,330	X	100 =	2.09 = S_{gw}

SURFACE WATER ROUTE SCORE

ROUTE CHARACTERISTICS		11				
CONTAINMENT	X	3				
WASTE CHARACTERISTICS	X	19				
TARGETS	X	6				
	=	3762	/64,350	X	100 =	5.85 = S_{sw}

AIR ROUTE SCORE

OBSERVED RELEASE	0	/35,100	X	100 =	0.00 = S_{air}

SUMMARY OF MIGRATION SCORE CALCULATIONS

	S	S^2
GROUND WATER ROUTE SCORE (S_{gw})	2.09	4.37
SURFACE WATER ROUTE SCORE (S_{sw})	5.85	34.22
AIR ROUTE SCORE (S_{air})	0.00	0.00
$S^2_{gw} + S^2_{sw} + S^2_{air}$		38.59
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_{air})}$		6.21
$S_M = \sqrt{(S^2_{gw} + S^2_{sw} + S^2_{air})}/1.73$		3.59

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: MAY 3 1 1985

SUBJECT: Subject: Arnold, H.M./Chevron Chemical Site (GAD980556831)

FROM: Environmental Engineer

TO: File, Arnold, H.M./Chevron Chemical Site (GAD980556831)
THRU: Chief, Site Screening Unit

April 30, 1985, at 10:30 a.m., I met with Jeff Williams of GA EPD to discuss my review of the SI report written by him per RCRA §3012 Program. The following questions were the result of my review; and Jeff answered these questions during the meeting as follows:

1. How far away from the site is the city of Monroe water intake? Is the intake upstream or downstream from the site? The water intake is approximately 3 miles northwest fo the site, and is upstream from the site. This was verified by checking the USGS Monroe Quad sheet.

2. Was off-site contamination addressed during the SI? Yes, GA EPD conducted a well survey in the area adjacent to the site and found no wells in the area. The nearest well to the site is 2 miles away. Additionally, an extent of contamination study was conducted by the PRP's contractor, Ecology and Environment (E & E) prior to the remedial action. A copy of this report was presented by Jeff at the meeting; this E & E report has been added to the project file.

3. Can EPD provide more information on the air monitoring conducted during the remedial action? Yes, Jeff provided me a copy of additional air monitoring that indicated no significant levels of pesticides were detected in the warehouse.

The answers provided by Jeff supports the tentative disposition that no further action is needed at this site. Contaminated soil was voluntarily removed by the PRP, Chevron Chemical Company; there is no significant hazard to the local public water intake located on the Alcovy River, and no wells were found in the area of the site. The homes, apartments, etc., near the site are supplied with public water.

References

1) An Evaluation of the Distribution of Pesticide Compounds in the Soils Surrounding a former Georgia Agrichemical Warehouse, Ecology and Environment, Inc., February 2, 1984.

2) Letter communication to Robert Timmel, Chevron Chemical Company, from Boyd N. Possin of Ecology and Environment, April 13, 1984.

Camilla Bond Warren

Camilla Bond Warren

```
                                                    * ACTION: _
1
CO/CHEVRON CHEMICAL                SOURCE: N        * ____________________________ _
ST                                 CONG DIST: 10    * ____________________ __
                                   ZIP:       30655 * ____________ ____-__ *
                                   CNTY CODE: 297   * ____________ __
  LONGITUDE:  083/42/19.7                          * __/__/__.__ ____/__/__.__
 HYDRO UNIT:  03070103                             * ____ ____
DIAL IND: Y  REMOVAL IND: N  FED FAC IND: N        * _ _ _ _
G DATE:          NPL DELISTING DATE:               * _ __/__ __/__
CLASS:                                             * __ __
                                                   * __ __ __ __ __
          RPM PHONE:       -  -                    * ____________ ___-___-____
 FLD1:            REG FLD2:                        * ____ ____ _
   NO FURTHER ACTION (X)                           * PENDING (_)   NO FURTHER ACTION (_)
SP PARTY ( )  VOLUNTARY RESPONSE ( )               * _ _
PONSE    ( )  COST RECOVERY      ( )               * _ _

SED FOR MARKETING WAREHOUSE AND DUST               * ____________________________________________
AGRICHEMICALS. SEE COMMENTS                        * ____________________________________________
                                                   * ____________________________________________
                                                   * ____________________________________________
```

* ACTION: _

/CHEVRON CHEMICAL

PROGRAM CODE: H01 PROGRAM TYPE: *

ALIAS LINK : * _

E EVALUATION *

*

*

*

*

* ACTION:

/CHEVRON CHEMICAL
ON

PROGRAM CODE: H01 EVENT TYPE: DS1

NT QUALIFIER: EVENT LEAD: E *

STATUS: *

*

*

*

*

CURRENT ACTUAL

START: START: * / / / / /

COMP : COMP : 81/06/01 * / / / / /

*

*

MENT # STATUS STATE %

*

* ACTION: _

/CHEVRON CHEMICAL
ON

PROGRAM CODE: H01 EVENT TYPE: PA1

NT QUALIFIER: EVENT LEAD: S

RY ASSESSMENT STATUS:

CURRENT ACTUAL

START: START: 82/09/01

COMP : COMP : 82/09/01

MENT # STATUS STATE %

* ACTION:

/CHEVRON CHEMICAL
ON

PROGRAM CODE: H01 EVENT TYPE: PA2

NT QUALIFIER: EVENT LEAD: S

RY ASSESSMENT STATUS:

CURRENT ACTUAL

START: START: 85/04/19

COMP : COMP : 85/04/23

MENT # STATUS STATE %

* ACTION: _

/CHEVRON CHEMICAL
ON

PROGRAM CODE: H01 EVENT TYPE: SI1

NT QUALIFIER: EVENT LEAD: S

ECTION STATUS:

CURRENT ACTUAL

START: START: 84/12/01

COMP : COMP : 84/12/01

MENT # STATUS STATE %

ES INITIATED AND C	ACTION
ACTIVITIES AT	*
	*
	*
	*

received from Jeff Will to answer questions about air monitoring 4/30/85 CBW

ecology and environment, inc.

195 SUGG ROAD, P.O. BOX D, BUFFALO, NEW YORK 14225, TEL. 716-632-4491, TELEX 91-9183

International Specialists in the Environmental Sciences

April 13, 1984

Mr. Robert Timmel
Chevron Chemical Company
595 Market Street
San Francisco, CA 94120

Re: CC-263

Dear Mr. Timmel:

Pursuant to my letter to you of March 5, 1984, and in accordance with our recent telephone conversation, Ecology and Environment, Inc., (E & E) submits, in this letter, data pertaining to the recent sampling activity conducted by you and Mr. Steve Sherman of our staff at the former Chevron agrichemical warehouse in Monroe, Georgia.

The sampling activity was conducted on March 16, 1984. The following samples were taken:

- o four off-site surface soil samples,
- o five bulk dust samples inside the warehouse building, and
- o four ambient airborne particulate samples (two for arsenic, two for organo pesticides) inside the building.

Table 1, attached, lists the parameters and detection limits that were analyzed for each sample type.

Tables 2, 3, and 4, attached, list the analytical results obtained on the soil, dust, and airborne particulate samples, respectively. If a parameter is not listed on a given table, that means the parameter was not detected in any samples listed on that table. This is especially notable on Table 4, where none of the organic pesticides are listed, since none were detected in either of the airborne dust samples collected. If a parameter is listed but no value is shown, that means that the parameter was not detected in that sample. This occurs on Tables 2 and 3.

At your request, we examined the high arsenic concentrations in the bulk dust samples by analyzing the concentrations of copper and chrome in the dust. This was done to test the theory that the arsenic came not from any Chevron activities, but rather from the activities of the present warehouse building tenant, Childscapes, Inc. Childscapes utilizes lumber in its manufacturing process. The lumber is treated with a wood preservative compound containing arsenic, copper, and chrome. If all three of these compounds are present in the bulk dust samples, and if they are

present in the same ratios, then it would seem likely that the arsenic concentrations are derived from the wood preservative material and not from any past Chevron arsenic-based pesticides.

Table 5, attached, shows the relative concentrations, in percent, of the arsenic, copper, and chrome in each of the dust samples. The relative ratios are strikingly similar in every case, even though the absolute concentrations (shown on Table 3) vary through one order of magnitude. There is little doubt, therefore, that the arsenic in the bulk dust is derived from Childscape's wood handling processes.

Not included in this report is our laboratory QA/QC information. Those data will be at your office by Thursday, April 19. If you have any questions concerning the information presented in this letter, please do not hesitate to contact Mr. Sherman or me.

Very truly yours,

Boyd N. Possin, Manager
Hydrologic Systems Group

BNP/oio

Attachments

TABLE 1

ANALYTICAL PARAMETERS AND DETECTION LIMITS
BY SAMPLE TYPE

Parameter	Soil Detection Limit (ug/kg)	Bulk Dust Detection Limit (mg/kg)	Airborne Dust Detection Limit (mg/m^3)
Aldrin	0.08	0.05	0.02
a-BHC	0.06	0.01	0.02
b-BHC	0.12	0.01	0.02
g-BHC	0.08	0.01	0.02
d-BHC	0.18	0.07	0.02
Chlordane	0.28	0.05	0.02
4,4'-DDD	0.22	0.05	0.02
4,4'-DDE	0.08	0.05	0.02
4,4'-DDT	0.24	0.05	0.02
o,p-DDD	0.24	0.05	0.02
o,p-DDT	0.24	0.05	0.02
Dieldren	0.04	0.05	0.02
Endosulfan I	0.28	0.05	0.02
Endosulfan II	0.08	0.05	0.02
Endosulfan Sulfate	1.32	0.05	0.02
Endrin	0.12	0.05	0.02
Endrin Aldehyde	0.46	0.05	0.02
Heptachlor	0.06	0.05	0.02
Heptachlor Epoxide	1.66	0.05	0.02
Toxaphene	4.80	0.05	0.02
Arsenic	1.0	1.0	0.002
Copper	N/A	1.0	N/A
Chromium	N/A	1.0	N/A

NA = Not Analyzed

Analytical Methods:

Organo pesticides in soil, and bulk dust	- Method 8080*
Arsenic in soil and bulk dust	- Method 7060*
Copper in bulk dust	- Method 7210*
Chromium in bulk dust	- Method 7190*
Organo pesticides in airborne dust	- Method S274**
Arsenic in airborne dust	- Method S309**

* From: United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982.

**From: NIOSH Manual of Sampling Data Sheets, 77-159, 1977.

TABLE 2

ANALYTICAL RESULTS - SOIL SAMPLES (mg/kg)

Field Identification	Composite	1	2	3	4
Lab Identification	84	84920	84921	84922	84923
4,4'-DDE	0.94	0.087		2.375	0.559
4,4'-DDT	3.6			10.70	2.58
Arsenic	4.25	2.3	3.1	2.4	11.0

Note: All samples were taken north of the plant site at the rear of the property at 136 East 5th Street.

Sample 1 is a 3-inch deep sample taken 6 feet east of the neighbor's north-south property line.

Sample 2 is an 18-inch deep sample from the same location as Sample 1.

Sample 3 is a 3-inch deep sample taken at the right rear corner of the garage.

Sample 4 is an 18-inch deep sample taken at the same location as Sample 3.

The 3-4 location, according to the owner, contains soil brought in from off-site as fill.

TABLE 3

ANALYTICAL RESULTS - BULK DUST SAMPLES (mg/kg)

Field Identification	1	2	3	4	5
Lab Identification	84915	84916	84917	84918	84919
a-BHC	1.4	0.73	1.5	6.4	1.9
b-BHC	0.69	1.04	0.63		
g-BHC	1.6	1.2	1.3	7.4	2.5
4,4'-DDE	7.2	11.1	4.6	9.7	124
4.4'-DDT	78.5	176	39.4	103	402
Endrin				47.1	138
o,p-DDD				5.3	8.4
o,p-DDT				5.3	5.6
Arsenic	4550	1460	4780	548	780
Copper	3010	1100	2900	480	690
Chromium	5300	1800	5700	670	1100

Note: All samples were scrapings taken from inside the building.

Sample 1 was taken off ceiling framework.

Sample 2 was taken off the workbench.

Sample 3 was taken from a window sill.

Sample 4 and 5 were taken from cracks in the concrete floor.

TABLE 4

ANALYTICAL RESULTS - AIRBORNE DUST SAMPLES (mg/m^3)

Field Identification	3	5
Lab Identification	84928	84929
Arsenic	0.01	0.006

Note: No detectable levels of organo pesticides were found in any of the samples tested.

NIOSH presently recommends that ambient airborne dust arsenic levels not exceed 0.05 mg/m^3 in the workplace.

TABLE 5

RELATIVE CONCENTRATIONS (IN %) OF ARSENIC, COPPER, AND CHROMIUM IN THE BULK DUST SAMPLES

Field Identification	1	2	3	4	5
Lab Identification	84915	84916	84917	84918	84919
Arsenic	35.4	33.5	35.7	32.3	30.4
Copper	23.4	25.2	21.7	28.3	26.8
Chromium	41.2	41.3	42.6	39.5	42.8

Note: Values were derived in two steps. First, for each sample, the concentrations of arsenic, copper, and chromium found on Table 3 were summed. Second, the Table 3 concentrations of arsenic, copper, and chromium for each sample were calculated as percentages of these sums.

EPA

POTENTIAL HAZARDOUS WASTE SITE
TENTATIVE DISPOSITION

REGION	SITE NUMBER
IV	GAD980556831

File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System, Hazardous Waste Enforcement Task Force (EN-335), 401 M St., SW, Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET	
Arnold, HM Co./Chevron Chemical	137 E. Fambrough St.	
C. CITY	**D. STATE**	**E. ZIP CODE**
Monroe	Georgia	30655

II. TENTATIVE DISPOSITION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	MARK 'X'	ACTION AGENCY: EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED -- NO HAZARD	X				
B. INVESTIGATIVE ACTION(S) NEEDED (If yes, complete Section III.)					
C. REMEDIAL ACTION NEEDED (If yes, complete Section IV.)					
D. ENFORCEMENT ACTION NEEDED (If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)					

E. RATIONALE FOR DISPOSITION

Responsible party clean-up of contaminated soils around warehouse used 1952-1969 by Chevron Chemical Company. State took split samples following clean-up and found no significant soil contamination. Groundwater, geologic, and surface water information (in state report indicates) no significant contamination to public health or environment

F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION (mo., day, & yr.)	G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL BE DEVELOPED (mo., day, & yr.)
4/30/85	

H. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Camilla Bond Warren	FTS 257-2234	4/22/85

III. INVESTIGATIVE ACTIVITY NEEDED

A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.

Verify with EPD questions on SI report. These questions should not change site disposition. This was done 4/30/85 in meeting with Jeff Williams, GA EPD, who wrote report CBWarren 4/30/85

B. PROPOSED INVESTIGATIVE ACTIVITY (Detailed Information)

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION (mo, day, & yr.)	3. TO BE PERFORMED BY (EPA, Contractor, State, etc.)	4. ESTIMATED MANHOURS	5. REMARKS
a. TYPE OF SITE INSPECTION (1)				
(2)				
(3)				
b. TYPE OF MONITORING (1)				
(2)				
c. TYPE OF SAMPLING (1)				
(2)				

Continue On Reverse

SITE INVESTIGATION REPORT

H.M. ARNOLD CO.

MONROE, GEORGIA

GAD980556831

JEFFREY M. WILLIAMS
REMEDIAL ACTIONS UNIT
GEORGIA ENVIRONMENTAL PROTECTION DIVISION
SEPTEMBER 11, 1984

TABLE OF CONTENTS

List Of Figures

1.0 EXECUTIVE SUMMARY

The H. M. Arnold Company site is located at 137 East Fambrough Street in Monroe, Georgia and consists of 2 acres of land approximately 3 miles southwest of the Alcovy River. The facility has been inactive in the production of chlorinated pesticide compounds since 1969.

In 1980, the Chevron Chemical Company voluntarily reported this site to the U.S. EPA via a CERCLA 103c notification. In December 1983, Chevron Chemical contracted with Ecology and Environment to evaluate the extent of contamination at the site. In February 1984, personnel from the Georgia EPD met with Robert L. Timmel, of Chevron Chemical Co. to discuss the proposed remedial action for the site. Subsequent remedial action by a private contractor, I.T. Corp., removed approximately 1200 yd^3 of contaminated soil which was transported to a disposal facility in Pinewood, South Carolina.

The site has been properly filled with an impervious clay layer and leveled to minimize potential runoff. There are no known wells in the vicinity and the waste is characteristically insoluble; hence there is a minimal threat to groundwater at the site.

this doesn't make sense.

The Georgia EPD conducted a site inspection at this facility on May 7, 1984, after the remedial action was complete. Three composite sample was taken from sections 1,4 and 8 (fig. 3). No significant contamination of the soils was detected after excavation of the site and no further remedial action should be required at the site.

What about off-site?

2.0 BACKGROUND

2.1 Location

The H.M. Arnold Co. site is located at 137 East Fambrough Street, Monroe, Georgia 30655 in Walton County. The site is at latitude 33°46'57".6N and longitude 83° 42' 19".7 W on the Monroe Quadrangle 7.5 minute series, USGS Map (fig. 1).

2.2 Site Layout

The site consists of a two (2) acre tract of land located between 137 East Fambrough Street and Fifth Street, parallel to the Seaboard Coastline Railroad (fig. 2).

2.3 Ownership History

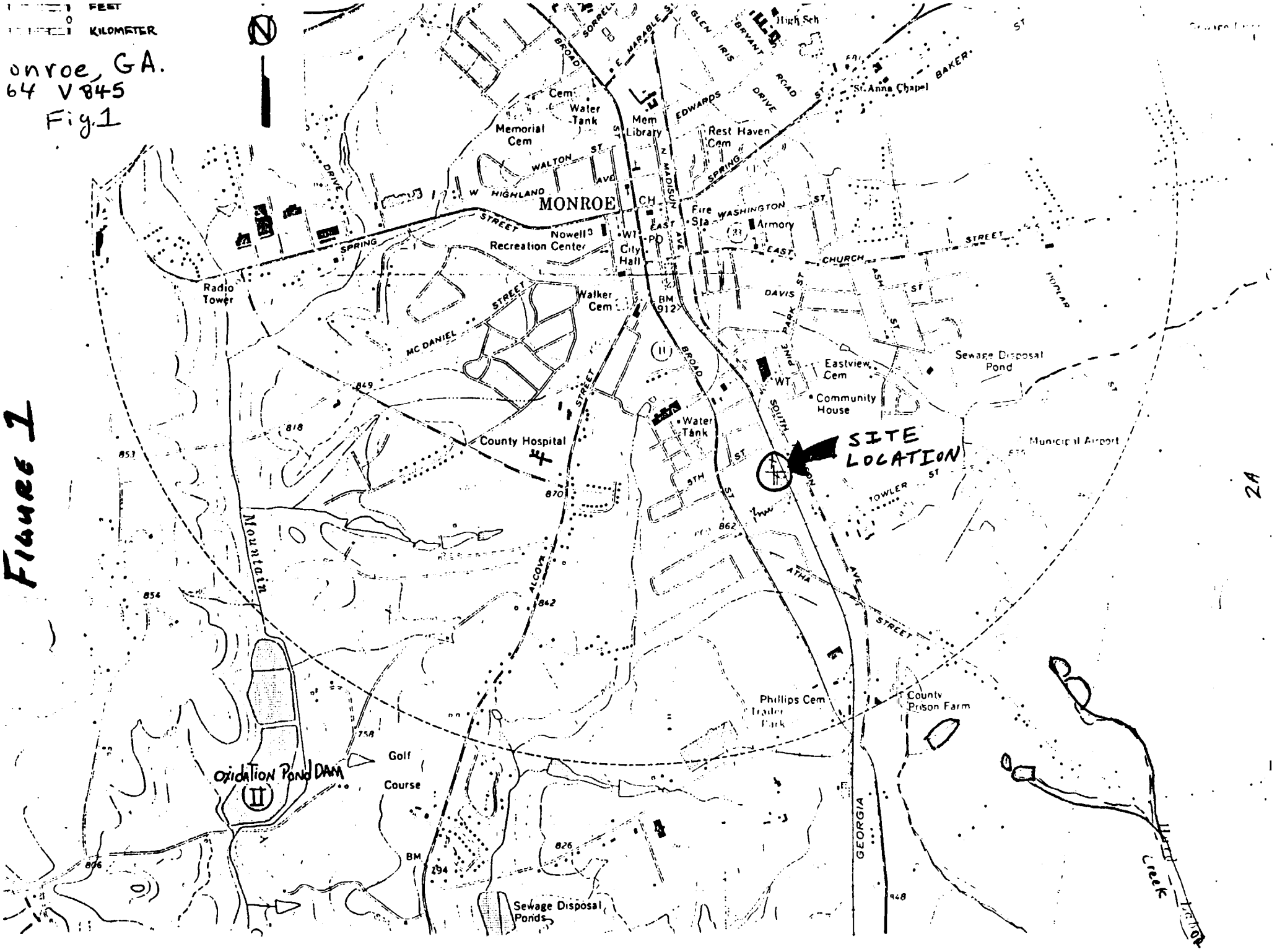
The current owner and past owner of the site is Mr. Harry M. Arnold of [Monroe, Georgia.] From approximately 1952 to 1969, Chevron Chemical Company leased the 2 acre site and adjacent rail spur from Mr. Arnold and operated an agrichemical marketing warehouse and dust formulating plant. Current operator of the site is Childscapes, Inc., a manufacturer of children's playground equipment.

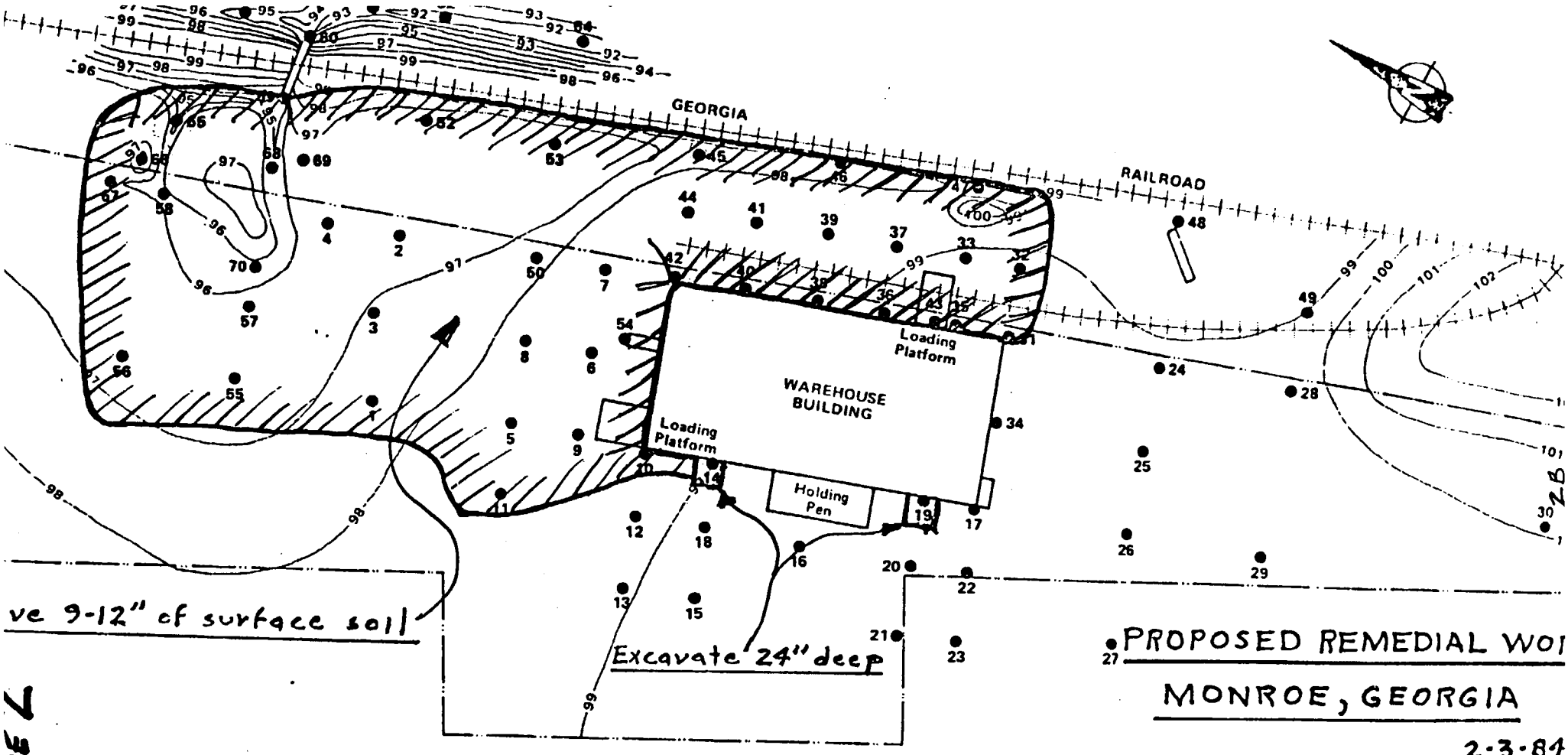
2.4 Site Use History

The site was used as a marketing warehouse and dust formulating plant for chlorinated pesticides such as DDT, Lindane, DDD, Endrin and Dieldrin.

2.5 Permit and Regulatory History

(Not Applicable) In 1981, the Chevron Chemical Company reported the subject site to EPA as a potential hazardous waste site required via a CERCLA 103c notification.


FEET
KILOMETER
Monroe, GA.
64 V845
Fig 1
FIGURE 1
MONROE
SITE LOCATION
Memorial Cem
Water Tank
Mem Library
Rest Haven Cem
St. Anna Chapel
Nowell Recreation Center
City Hall
Fire Sta
Armory
Radio Tower
Walker Cem
County Hospital
Water Tank
Eastview Cem
Community House
Sewage Disposal Pond
Municipal Airport
Phillips Cem
Trailer Park
County Prison Farm
Golf Course
Oxidation Pond DAM
Sewage Disposal Ponds
Mountain
GEORGIA
Hard Labor Creek
WALTON ST
SPRING STREET
W HIGHLAND
MC DANIEL STREET
BROAD
MADISON
EAST CHURCH STREET
DAVIS
PINE PARK ST
SOUTH
ALCOVA
ATHA AVE
STREET
TOWLER ST
EDWARDS DRIVE
BRYANT ROAD
GLEN IRIS DRIVE
E MARABLE ST
SORRELL
BAKER
ASH ST
POPLAR
5TH ST
853
849
818
870
862
854
842
826
806
758
794
948



Inc., 1984.

Fig 2.

2.6 Remedial Actions to Date

Remedial Actions at the subject site were performed during the period from May 1 through May 10, 1984. The reason for remedial action was a voluntary cleanup committment by the Chevron Chemical Company. Remedial Action at the site consisted of removing contaminated soil and the vacuuming of dust inside the warehouse building. All waste was transported to SCA Chemical Services in Pinewood, S.C. for disposal. Appendix A contains photographs of the operation.

2.7 Summary Trip Report

Prior to visiting the site, the city administrator for Monroe, Mr. E.R. Jones, was notified of the inspection. In addition, Mr. Gene Pietso, the current operator of the site and President of Childscapes, Inc. was notified. The EPD personnel present during the site inspection and a chronological review of events is as follows:

Jeff Williams -	Project officer, sampling team
Thomas M. Westbrook -	Sampling team
Claude W. Goodley -	Site assistance team
Joseph T. Surowiec -	Site assistance team

On May 1, 1984, we arrived on site at 1000 hours to observe the initial excavation and stockpiling of material according to work schedule. Excavation of contaminated soil was completed by May 6, 1984. We conducted a preliminary reconnaissance of the area with Robert L. Timmel of the Chevron Chemical Co. We observed the location of alleged open dump areas and noted possible sampling locations for May 7, 1984 sampling project. Sample splits were taken between Georgia EPD personnel and I.T. Corp. Sample areas 1,4 and 8 were tested by the Georgia EPD to ensure no residual pesticides exist at the subject site (fig. 3). All remedial action at the subject site was completed by May 10, 1984.

Figure 3.

EPD took # 3 composite samples from sections 1, 4, 8.

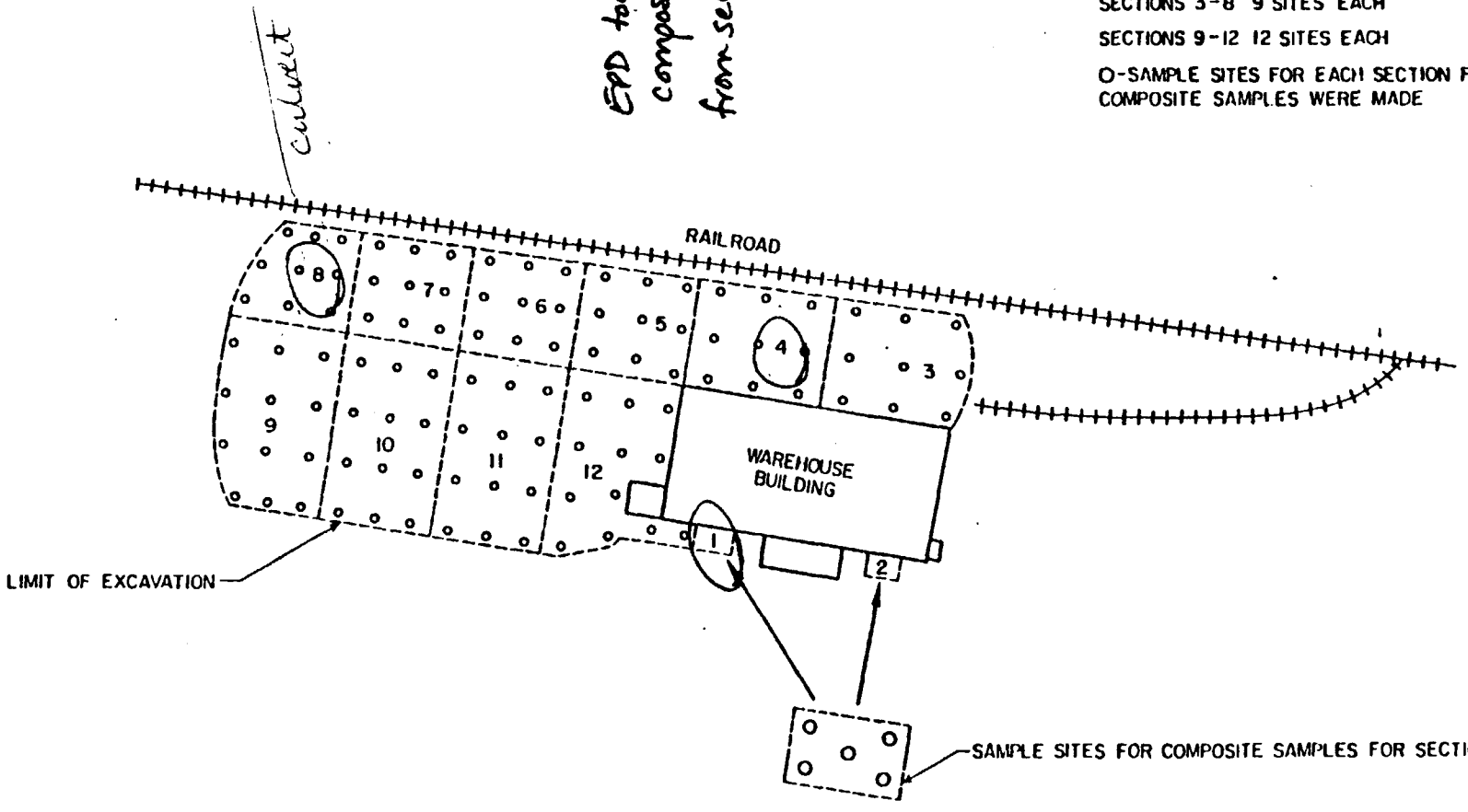
LEGEND FOR 1-12 SAMPLE SECTIONS

SECTIONS 1 & 2 5 SITES EACH

SECTIONS 3-8 9 SITES EACH

SECTIONS 9-12 12 SITES EACH

O-SAMPLE SITES FOR EACH SECTION FROM WHICH COMPOSITE SAMPLES WERE MADE



0 25 50 75 100 125 150
SCALE FEET

FIGURE 3

3A

IT CORPORATION

SAMPLING SCHEME OF FORMER CHEVRON CHEMICAL AGRICULTURE CHEMICAL FORMULATION PLANT SITE

FIGURE 3

DESIGNED BY: J RAGSDALE	DRAWN BY: DSROY	
PROJECT NO: FS7569	SCALE:	DATE: 5/18/84

3.0 ENVIRONMENTAL SETTING

3.1 Topography

Walton County is located in the middle of the Piedmont section of Georgia. Most of the upland areas are gently sloping but some areas along drainage ways are strongly sloping. The site under investigation occurs in a relatively high area, on a topographic divide. The site occurs at an elevation of approximately 885 feet. The nearest perenially flowing streams are approximately 100 feet lower in elevation than the site. Slope of the site is approximately 2 to 6 % with the slope increasing to the Southwest. The site is located approximately 1.2 miles within the city limits of Monroe on Highway 11 North (fig. 1).

3.2 Surface Waters

The Apalachee, Yellow and Alcovy Rivers drain all of the county. The Alcovy River provides the main source of drinking water for the town of Monroe and is located approximately 3 miles NW from the site. Mountain Creek, Bay Creek, Maple Creek and Beaver Dam Creek all drain into the Alcovy River, which empties into Jackson Lake. Grubby Creek becomes intermittent west of the Sewage disposal pond and flows perennially east of the sewage disposal pond at Poplar Street. Also, one intermittent tributary from Mountain Creek occurs near Alcova St. and Fifth St. at an elevation of 800 feet. Flow rate of the Alcovy River averages 262 ft^3/sec. at the Covington water works intake, located six miles northeast of Covington. The site is not located in the 100 year flood plain, hence the potential for flooding at the site is virtually nonexistent. No stream classification is available in regard to this area[10].

3.3 Geology and Soils

The site is underlain by both Igneous and Metamorphic rocks. Sixty percent of the area is underlain by biotitic gneiss, mica schist and amphibolite. According to the Geologic map of Georgia, biotite gneiss and scist underlie about sixty percent of the county with granite gneiss under the remainder. The upper most 5 to 14 inches of coarse, sandy loam or sandy clay loam overlies 2 to 4 feet of firm sandy clay loam to clay. The depth to bedrock ranges from 3 to 30 feet but is commonly less than 10 feet. Permeability of these soils is moderate. The color of the subsoil ranges from yellowish red to red and clay content increases with depth. The soils at the site have a very high adsorptive capacity with respect to the pesticides involved[6].

3.4 Ground Water

Generally, ground water in this area is found under water table conditions (unconfined)[9]. Ground water is stored in the mantle and in fractures in the underlying bedrock. The available area of storage of water in the mantle is limited, consequently wells within the area are few and generally low producers of water. The average well produces 20 gpm. There are no wells located within approximately 2-3 miles of the site[1]. These wells appear to be located in a different watershed from the site[9].

3.5 Climate and Meteorology

The climate of Walton County is of the humid, warm, temperate, continental type characteristic of the southeastern part of the United States[6]. Average rainfall ranges from 44 to 59 inches a year with average annual runoff from 10 to 39 inches[6]. Average high temperatures for the months of June, July and August are about 90°F. The average minimum temperature for the

summer months is about 67°F. Winter weather is moderate with inconsequential snowfall. Winds are generally from the northeast in fall and winter and southerly in spring and summer. Most of the soils are highly weathered, leached and strongly acid due to the climate of this region.[6]

3.6 Land Use

The subject site is located in the Southeastern section of the city of Monroe, about ½ mile from the center of town. Land use in the immediate area is limited to residential and commercial purposes[6]. Residential areas adjacent to the site occupy approximately 2 acres.

3.7 Population Distribution

The site is bordered on the west by a recently constructed residential complex. One private residence is located along the north boundary of the site.

3.8 Water Supply

As stated in section 3.2, the Alcovy River provides the main water supply for the town of Monroe and its residents. The surface intake on the Alcovy for the city of Monroe is located at the bridge crossing of Georgia Road 10 and U.S. Highway 78 on the upstream side of the River. This system serves over 10,000 residents of Monroe and the surrounding area. The 1983 annual metered rate of water to the consumer was 768,445,000 gallons/year. These estimates are based on information provided by the Public Works Dept., Monroe.

3.9 Critical Environments

There are numerous private ponds less than one mile southeast of the subject site near the municipal airport. Hard Labor Creek is located 3 miles

southeast and downslope of the site. Hard Labor Creek State Park is approximately 10 to 12 miles southeast of the site. The Park provides recreational activities to the public such as fishing and camping.

The swampland area along the flood plain of the Alcovy River supports a wide variety of plant and animal life. These swamplands are approximately 4 miles downslope and southwest of the subject site. The particular endangered species in this area are as follows:

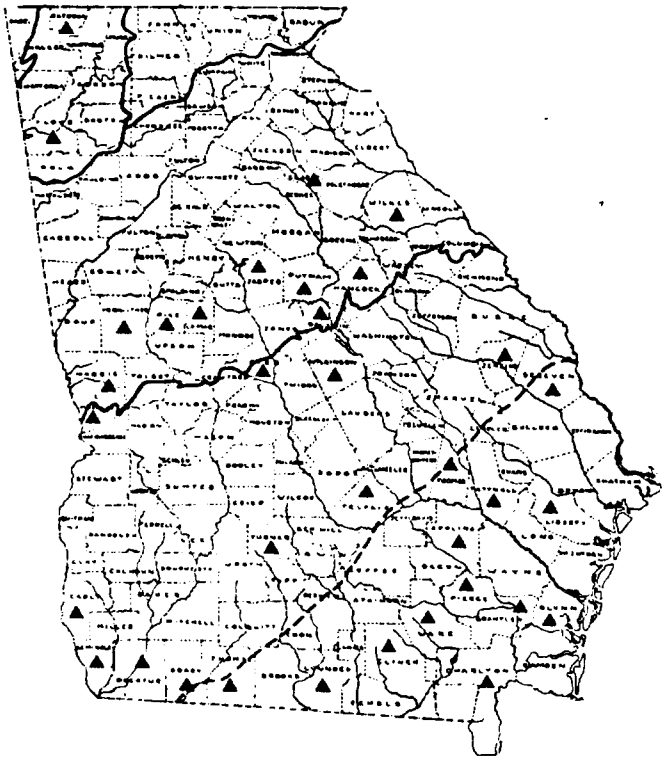
Red Cockaded Woodpecker
Indiana Bat
Southern Bald Eagle
Amphianthus Plant
Sedum Plant

(see table 3.9)

TABLE 3.9

RED-COCKADED WOODPECKER — Order Piciformes

*Picoides borealis (Vieillot) — Family Picadae



(REFER TO COLOR PHOTO PAGE 1)

Common Name: Red-cockaded woodpecker.

Characteristics: A gregarious, non-migratory species similar in appearance to the hairy woodpecker, except that the top of the head is black, the cheeks conspiciously white, and the sides spotted with black. Males have an inconspicious red streak above each ear. The average length for the species is 215 mm. (Peterson, 1947). The nest is easily recognized by pitch (pine sap) that covers the bark below the nest entrance.

Life History: A very gregarious bird (except during the breeding season) that feeds in the upper regions of large pines (Burleigh, 1958). Food consists of insects and arthropods, including the larvae of wood boring insects, and some vegetable matter. When feeding, these birds move from one tree to another, covering large areas in the course of a day. Vocalizations usually consist of high-pitched squeals. Nesting is tied very closely to overmature pines, (longleaf, slash, loblolly, and shortleaf) infected with red heart disease, caused by the fungus Formes pini. This

disease facilitates excavation by the woodpecker. The average age of cavity trees in north Florida was 85 years and ranged from 59 to 167 years (Baker, 1971).

Preferred Habitat: The Red-cockaded woodpecker is one of the most habitat-specific North American woodpeckers. For nesting and roosting it requires overmature pine trees infected with red heart disease. Understory vegetation less than 1.5 m. (5 ft.) in height is generally preferred.

Status: Currently listed as endangered on both the Federal Endangered Species List and Georgia's Protected Species List.

Population Trends: This species has declined drastically over the years due to the logging of mature pine forests. However, recent management practices have resulted in substantial population increases in some areas.

Estimated Populations: Estimates by Thompson (1971) indicate 200 individuals in Georgia and 3000 in the United States. The Red-cockaded Woodpecker Recovery Team (1977) estimates the total population to be less than 10,000.

Reproduction: Red-cockaded Woodpeckers apparently mate for life. Eggs are laid in clutches of 2-7 and incubation begins before the clutch is complete; consequently the hatch of the young is staggered. This may be a mechanism regulating brood size to the availability of food (Lack, 1954). On the average, one to two young are fledged at about 26 to 29 days of age. Although young are foraging for themselves a few days after fledging, they may continue to receive food from their parents for several months (Ligon, 1970). Although as many as 20 cavities may occur in a Red-cockaded Woodpecker "colony" there is never more than one breeding pair per colony (Jackson, et. al., 1976).

Reasons for Decline: Population declines have resulted primarily from reduction of pine forests with trees 60 years old or older (Ibid.). More often than not, management for the species is viewed as incompatible with economic use of the forest (Ibid.). The role of pesticides in the possible reduction of insect food supplies is not yet clearly understood (Chamberlain, 1974) but may be of consequence to the species. Improper use of fire in forest management, competition for nest cavities with other animals, and adverse weather have contributed to the demise of the species (Jackson, et. al., 1976).

Protective Measures Taken: Recognized as endangered under the Endangered Wildlife Act of 1973. Federal and some state forestry agencies have initiated policies of saving large pine trees infected with red heart disease in areas where this species is know to occur (Red Data Book, 1973). Some paper companies are also taking steps to protect Red-cockaded habitat, including providing support stands. Piedmont National Wildlife Refuge and Fort Benning Military Reservation selectively manage Red-cockaded populations.

Present Distribution: South Atlantic and Gulf states from southern Missouri, western Kentucky, Tennessee, and southeastern Virginia, south to the Gulf Coast, and northern Florida, including all of Georgia (Burleigh, 1958).

Past Distribution: Past distribution included unfragmented populations extending into northern Arkansas and southern Missouri (Jackson, et. al., 1976).

Proposed Management Measures: Proposed management includes the identification of extant populations, protection and management of existing populations, the reestablishment of the species within its former range, and an emphasis on public education.

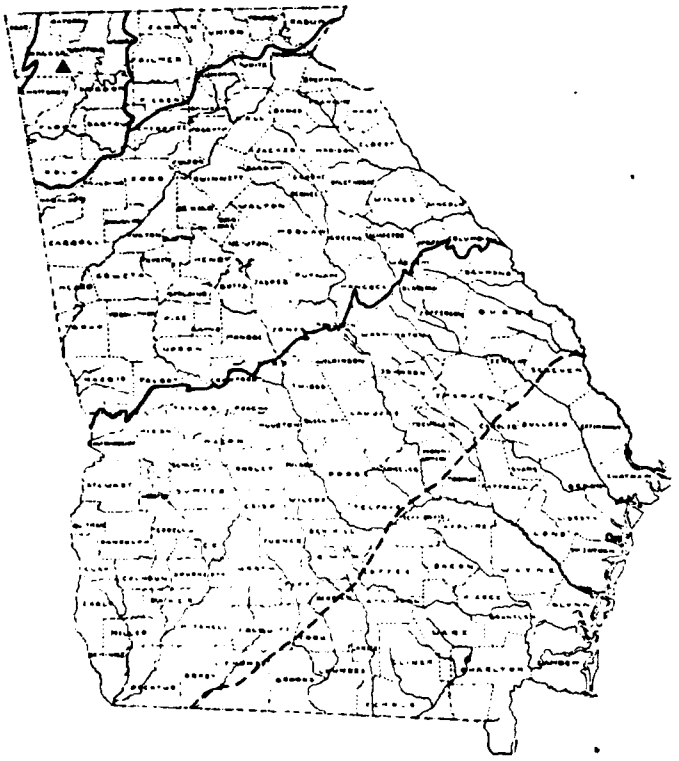
Number in Captivity: None known.

* The Red-cockaded Woodpecker has recently been changed from Genus Dendrocopus to Genus Picoides, Supplement #33, A.O.U. Checklist, Auk 90:411-419, 1976.

TABLE 3.9

INDIANA BAT — Order Chiroptera

Myotis sodalis (Miller and Allen) — Family Vespertilionidae



(REFER TO COLOR PHOTO PAGE 1)

Common Names: Indiana bat, Indiana myotis, Social bat.

Characteristics: This is a medium sized Myotis with a small foot. It is dull, dark gray, nearly black, or sometimes chestnut color. The fur is fine and fluffy with a pinkish gray under-color. The calcar has a slight keel. This bat is more tolerant of human disturbance than the Gray bat Myotis grisescens (Humphrey and Scudder, 1976).

Measurements: length, 70-90 mm. (2.8-3.5 in.); tail, 27-44 mm. (1.1-1.7 in.); hind foot, 7-9 mm. (.28-.36 in.); forearm, 36-41 mm. (1.4-1.6 in.).
wingspread, 240-267 mm. (9.5-10.5 in.).
weight, 4-5 g. (.14-.18 oz.).

Life History: The Indiana bat is a nocturnal insectivore. This species is colonial and hibernates in several caves in Kentucky and Missouri. It dis-

perses as small groups in summer. Females produce a single young each year, born at the beginning of July and flying 4 weeks later (Humphrey and Scudder, 1976). Like all insectivorous bats, it is valuable in insect control and deposits quano, a rich source of nitrogen.

Preferred Habitat: For winter hibernation, it selects caves which are moderately cool (3-6°C) with high humidity (87%). Since these specifications are met near the cave entrance, animals congregate at the entrance, making them especially vulnerable to harassment (Greenhall, 1973).

Status: Currently listed as endangered on both the Federal Endangered Species List and Georgia's Protected Species List.

Population Trends: Wintering populations appear to be on the decline in Indiana, Illinois, and Kentucky. A recent breeding colony census indicated a 71.5% decrease in this particular breeding unit (Engel, J.M. et. al., 1976). Total numbers have declined from 535,000 in 1960 to 354,000 in 1975 (Humphrey and Scudder, 1976).

Estimated Populations: Present populations are estimated at 354,000 individuals (Humphrey and Scudder, 1976). 90% hibernate in two caves in Kentucky and a cave and a mine in Missouri (Greenhall, 1973). Estimates for Georgia do not exist. The Indiana Bat Recovery Plan (1977) does not indicate a Georgia population.

Reproduction: The Indiana Bat breeding season occurs during the first ten days of October (Lowman, 1975). Limited mating also occurs before the hibernating colony disperses in late April. A single young is produced in late June.

Reasons for Decline: Vandalism, collecting, disturbance by spelunkers and banders, loss of habitat, commercialization of caves, and pesticide poisoning all have contributed to population declines. These human pressures combined with natural mortality and other hazards exert severe pressure on this particularly vulnerable species.

Protective Measures Taken: Nationally protected under the Endangered Species Act of 1973. Several states, such as Kentucky, have legislation protecting bats. In Georgia, they are protected under the Endangered Wildlife Act of 1973 and Cave Protection Act of 1977. The U.S. Forest Service is currently surveying National Forest lands for Indiana bat populations. Many organizations are cooperating to prohibit disturbance of bat caves. In 1972 the Depratment of the Interior issued a moratorium on the issuance of bat bands (Harvey, 1975). Except for its wintering habits, little is known about the biology of the species. In wintering areas, it exhibits highly colonial behavior. As many as 300 individuals per sq. ft. have been estimated within hibernating clusters (Engel, J.M. et. al., 1976). Studies indicate that during breeding, this species is less colonial and does not utilize caves. Breeding populations therefore would be less concentrated and less vulnerable (Engel, J.M. et. al., 1977).

Present Distribution: Myotis sodalis occurs in the midwest and eastern United States from the western edge of the Ozark region in Oklahoma, to southern Wisconsin, east to Vermont, and as far south as northern Florida

including Georgia where it has been taken from Walker County. The range is within the Mississippi watershed and the cavernous limestone areas associated with this geographical location.

Past Distribution: Same as present distribution but in much greater numbers.

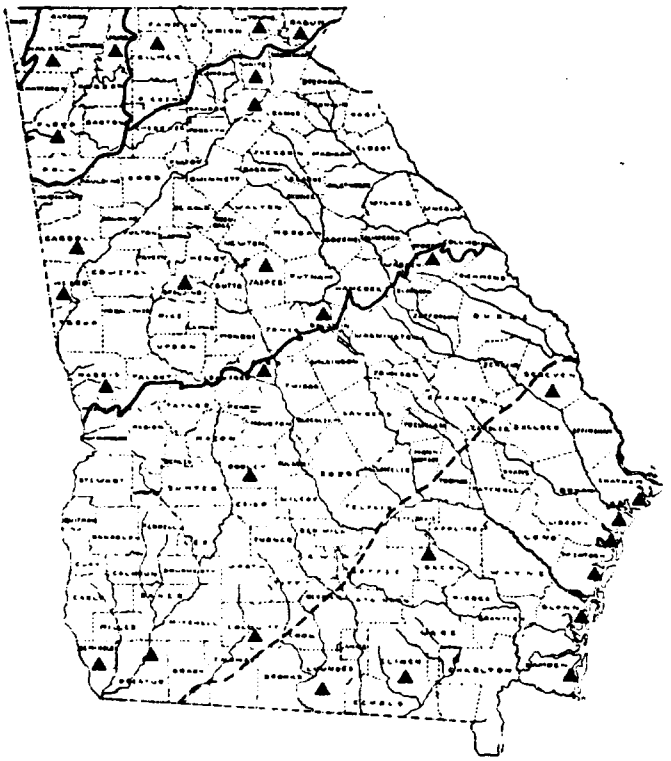
Proposed Management Measures: Acquisition and protection of the caves inhabited by the Indiana bat and/or partial blockage of these cave entrances to discourage human disturbance. Public education is also needed.

Number in Captivity: None known.

TABLE 3.9

SOUTHERN BALD EAGLE — Order Falconiformes

Haliaeetus leucocephalus leucocephalus (Linnaeus) — Family Accipitriidae



(REFER TO COLOR PHOTO PAGE 1)

Common Name: Southern Bald Eagle.

Characteristics: Haliaeetus leucocephalus leucocephalus is smaller than the northern subspecies, Haliaeetus leucocephalus alascanus, but is still a large raptor with an imposing wingspan of 1.83 m. (6 ft.) or more. The female bald eagle is larger than the male, a characteristic true of most raptorial species. Adults of both sexes are brown with a strikingly white head, appearing bald at a distance.

Life History: The bald eagle is a bird of inland waterways, and estuarine systems. The species exists at the top of the food chain with a diet chiefly of fish and occasional birds and mammals. After the late winter nesting season, eagles congregate in areas where food is more abundant. Many birds then use the same roost trees (Chamberlain, 1974).

Preferred Habitat: The Bald Eagle requires suitable wetland areas for hunting, and undisturbed lakeshore or coastal regions in which large trees for roosting

and nesting are available.

Status: Currently listed as endangered on the Federal Endangered Species List and Georgia's Protected Species List.

Population Trends: The regional population has been declining in the last thirty years. Florida populations have declined 50% in the last 30 years (Peterson, 1976).

Estimated Populations: About 235 active nests in 1965 in the Southeast were reported (Red Data Book, 1973). Estimates for Georgia are not available, however, fair numbers of migrants are reported annually.

Reproduction: The breeding season is in late fall or winter. Nests are constructed in tops of large trees, usually near water. One to three eggs are laid at intervals of several days. Incubation is about 35 days with both parents sharing brood responsibility (Chamberlain, 1974). Young remain in the nest up to three months. Their maturation rate is slow. The same nests are used annually and new nest material is added each year. Over the years some nests grow to as large as 2.4 m. (8 ft.) across. Maturity is not reached for 4-5 years, at which time adult plumage becomes evident and reproduction becomes possible.

Reasons for Decline: The Bald Eagle, as a wetland species, has long suffered from habitat destruction. Contamination by chlorinated hydrocarbons has also been very significant. Illegal shooting and disturbance of nesting areas have played a significant part in the species' dwindling numbers.

Protective Measures Taken: The Bald Eagle is protected by the State and Federal Government. Many studies are being conducted on the breeding habits and limiting factors. Areas have already been set aside as sanctuaries.

Present Distribution: The Bald Eagle nests primarily in the estuarine areas of Atlantic and Gulf coast, from New Jersey to Texas, and the lower Mississippi Valley southward from eastern Arkansas and western Tennessee, and through southern states, including Georgia, west to California and Baja, California (Red Data Book, 1973). There are no successful nest records in Georgia since 1970 on St. Catherines Island (Johnson, Hillestad, Shanholtzer, Shanholtzer, 1974).

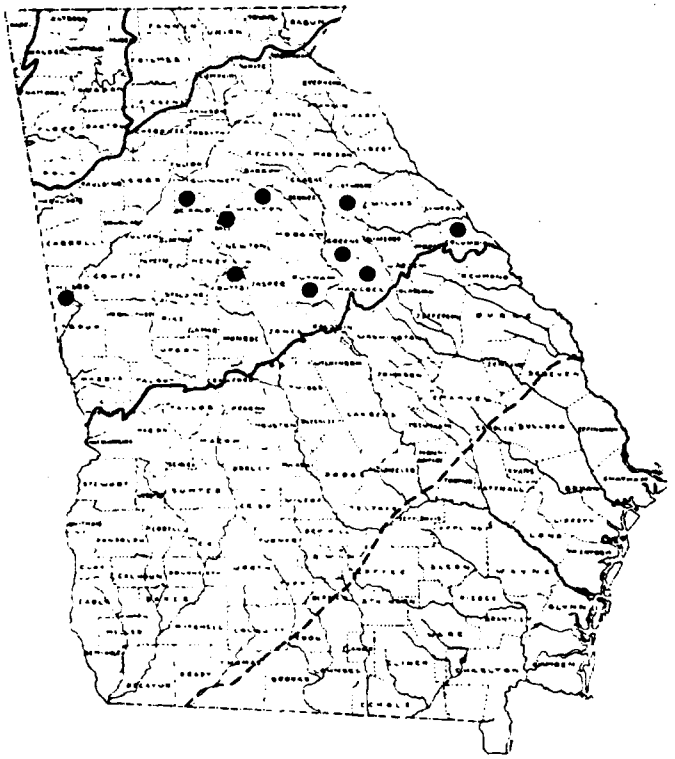
Past Distribution: Same as present, but in greater numbers.

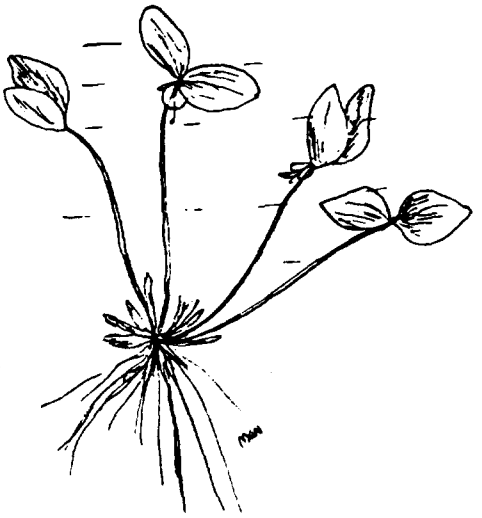
Proposed Management Measures: These must include an inventory of known and potential nest sites. Elimination of chlorinated hydrocarbons from food chains and examination of other limiting factors is important. Public education is also needed.

Number in Captivity: At least 50 in the United States (Red Data Book, 1973).

TABLE 3.9

Amphianthus pusillus Torrey (Schrophulariaceae) Endangered
Common Name: Amphianthus
Range: Piedmont of Ala., Ga., and S.C.
Plant Type: Annual aquatic herb





Amphianthus pusillus

Description: This is a diminutive plant which can easily be overlooked. It has both floating and submerged leaves. The floating leaves are oppositely arranged on the stem, ovate, 4-8 mm. long, 3-5 mm. wide, and are attached to the submerged leaves by delicate, lax stems. The submerged leaves are arranged in a basal rosette, lanceolate, and less than 1 cm. long. The flowers are small, white, inconspicuous, and are found both among the submerged basal leaves and in between the floating surface leaves. The fruit is a small capsule, 2-3 mm. broad, and 1 mm. long. Flowering period: Mar.-Apr.; fruiting period: Apr.-May.

Habitat: Restricted to the shallow, flat-bottomed depression pools of granite outcrops. These pools are usually less than a foot in depth and are completely dry in the summer after the spring rains have evaporated.

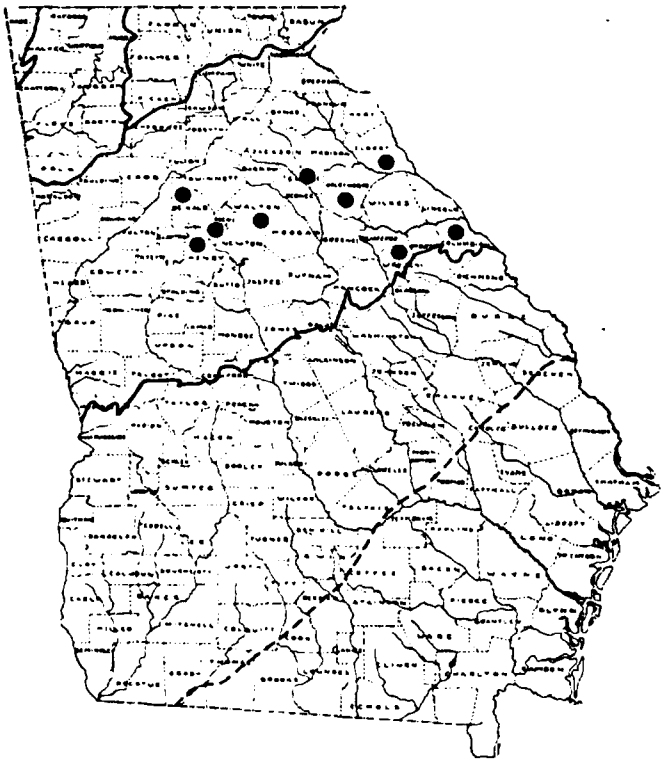
Selected Reference(s):

Duncan, W.H. and L.E. Foote. 1975. Wildflowers of the Southeastern United States. pg. 172. Univ. of Ga. Press, Athens, Ga.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1964. Manual of the Vascular Flora of the Carolinas. pg. 937. Univ. of N.C. Press, Chapel Hill, N.C.

TABLE 3.9

Sedum pusillum Michx. (Crassulaceae) Threatened
Common Names: Sedum, and Stonecrop
Range: Piedmont of Ga., N.C., and S.C.
Plant Type: Annual herb



Sedum pusillum

Description: This is a small, succulent plant up to 12 cm. tall that can easily be confused with Diamorpha (Sedum smallii), which is abundant on the granite outcrops. The difference between the two species is only slight; S. pusillum is the larger of the two species and has bluish-green leaves, whereas S. smallii has red leaves. The succulent leaves of S. pusillum are up to 12 mm. long, cylindric, and overlapping. The small white flowers have 4 petals which are 2-3 mm. long. The fruit is a follicle, 3-5 mm. long. Flowering period: Mar.-Apr.; fruiting period: Apr.-May.

Habitat: Restricted to granite outcrops, and is typically found growing among mosses in partial shade under Cedar trees (Juniperus virginiana). This habitat is quite different from the habitat of the other granite outcrop species S. smallii, which grows in shallow soiled depression pits that are fully exposed.

Selected Reference(s):

McVaugh, R. 1943. The vegetation of the granitic flatrocks of the Southeastern United States. Eco. Mono. 13:155.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1964. Manual of the Vascular Flora of the Carolinas, pg. 513. Univ. of N.C. Press, Chapel Hill, N.C.

4.0 WASTE TYPES AND QUANTITIES

4.1 Waste Quantities

Approximately 1200 tons (56 truckloads) of pesticide contaminated soil were removed from the site. Calculations of waste quantities were based on depth of excavation of the contaminated soils and the area to be excavated. Manifest documentation of the material removed from the site provided accurate estimates of waste quantities.

4.2 Waste Disposal Methods and Locations

From approximately 1952 to 1969, Chevron Chemical Co. leased the site and adjacent rail spur and operated an agricultural chemical marketing warehouse and dust formulating plant[9]. During the life of the facility, cotainerized pesticides were occasionally stored in the back yard area north of the building. It is also assumed that occasional sweeping of the building floors during the life of the facility may have resulted in some pesticide residues being swept out of the buildings loading doors.[9].

4.3 Waste Types

Waste types at the subject site consist of organo-chlorinated pesticides presenT in the surrounding soils at the site. The pesticides presenT at the site were DDT, DDD, DDE, Endrin, Lindane, BHC and Arsenic (see Appendix B).

5.0 LABORATORY DATA

(see Appendix B)

5.1 Summary

Composite soil samples were collected in 12 sections of the excavated area to determine the effectiveness of the cleanup operations. Samples were split with Chevron's contract lab, Ecology and Environment Inc. Georgia EPD officials tested sections 1,4 and 8 for pesticide residues by using a gas chromatograph equipped with an electron capture detector. DDT levels were found to be at least one order of magnitude lower after remedial actions were conducted at the site (see Appendix B) (fig. 3)

5.2 Quality Assurance Review

Georgia EPD officials were not present during the May 6, 1984 sampling of the excavated areas. Sample splits were taken, but not received until May 7, 1984. Georgia EPD laboratory analysis and Ecology and Environment Inc. laboratory analysis are relatively consistent. Some inconsistency is due to non-homogenity in compositing the sample splits.

6.0 TOXICOLOGICAL/CHEMICAL CHARACTERISTICS

Several chemicals have been identified and characterized by their physical and chemical properties at the former Chevron facility.

DDT - C_{14} H_9 Cl_5 (Dichloro diphenyl trichloroethane) is a colorless or white powder, odorless, insoluble in water and not compatible with alkaline materials. The route of entry into the body is by inhalation, skin absorption, ingestion and skin or eye contact[8].

Acute Tox Data is as follows:

Oral-lowest published toxic dose-(Infant) is 150 mg/kg
Oral-lowest published toxic dose (Humans) is 16 mg/kg (CNS damage)
Oral-lowest published toxic dose (Rat) is 113 mg/kg
Dermal-LD_{50} (Rabbit) is 300 mg/kg

Toxicity Summary - high via oral and dermal routes. Acute Oral Toxicity for man is 250 mg/kg[8].

DDT is a highly persistent organic compound with a persistence value of 3 as well as a toxicity value of 3 according to the HRS.

2,4-DDD - ($C_{14}H_{10}Cl_4$) (Dichlorodiphenyl dichloroethane) is one of the breakdown products of DDT.

Acute Tox. Data is as follows:

Oral LD_{50} (Rat) is 113 mg/kg
Dermal LD_{50} (Rabbit) is 1200 mg/kg

Toxicity Summary - High via oral. DDD is dangerous when heated to decomp, in that it emits highly toxic fumes of chlorides[8]. It's toxic by ingestion, inhalation and skin absorption. Uses are as dusts and wettable powders for contact control of leaf rollers and other insects[7].

DDE - Dichlorodiphenyl dichloro ethylene is a degradation product of DDT, and found as an impurity in DDT residues[8].

Aldrin - $C_{12}H_8\ Cl_6$

Acute Tox Data is as follows:

Oral LD_{50} (Rat) is 55 mg/kg
Dermal LD_{50} (Rat) is > 200 mg/kg

Toxicity Summary - High via oral, dermal and CNS routes. ingestion, inhalation, or absorptions of this material into the body can cause irritability and convulsions from 1 to 5 hours[8].

Properties - Brown to white crystalline solid, insoluble in water, a stereoisomer of dieldrin.

Uses - Insecticide

Tolerance - 0.25 mg per cubic meter of air[7].

Dieldrin - $C_{12}\ H_{10}\ O\ Cl_6$

Properties - Light tan flaked solid, insoluble in water, compatible with most fertilizers, herbicides and insecticides[7].

Uses - Insecticide

Hazard - Highly toxic by ingestion, inhalation and skin absorption. Penetrates intact skin[8]

Tolerance - 0.24 mg/m^3 of air.

Exposure to oral dosage that exceed 10 mg/kg results in acutely ill effects. Oral LD_{50} of Dieldrin for (rats) is 40-50 mg/kg which indicates a toxicity roughly five times that of DDT[8].

Dermal LD_{50} for (Rats) is 60 mg/kg female
90 mg/kg male

Acute dermal toxicity is roughly four times that of DDT.

Endrin - C_{12} H_8 O Cl_6

A white crystalline powder that is insoluble in water. Highly toxic by inhalation and skin absorption[8].

Tolerance is .1 mg/m^3 of air.

Acute Tox Data is oral LD_{50} (Rat is 3 mg/kg
dermal LD_{50} (Rat) is 15 mg/kg

Toxicity Summary: Extremely high via oral and very very high via dermal routes.

High toxicity to birds, fish, man

Does not accumulate in human tissue[8].

Lindane - C_6 H_6 Cl_6 - Gamma - Benzene Hexachloride

White crystalline powder used as a pesticide.

Acute Tox. Data is as follows:

Oral LD_{50} (cattle) 5-25 mg/kg
Oral LD_{50} (Rat) 88 mg/kg
Dermal LD_{50} (Rat) 500 mg/kg
Dermal LD_{50} (Rabbit) 50 mg/kg

LD for a child was 188 mg/kg via oral route.

Toxicity Summary: Hexachloro cyclo hexane, a toxic organo-chlorine pesticide which is persistent in the environment and accumulates in mammalian tissue[8].

Dangerous when heated to decomp, emits highly toxic fumes of phosgene[8].

Lead Arsenate - Pb_3 $(AsO_4)_2$

Properties: White crystals. Soluble in nitric acid; insoluble in water.

Uses: Insecticide, herbicide

Hazard: Highly toxic. Tolerance as (Pb), 0.15 mg per cubic meter of air.

Acute Tox Data is as follows:

Oral - lowest published lethal dose (Human) = 1.4 mg/kg
Oral - LD_{50} (Rat) = 100 mg/kg

Toxicity Summary: High via oral route.

Disaster Hazard: Dangerous, on heating, emits highly toxic fumes.

*All toxicological data taken from references 7 and 8.

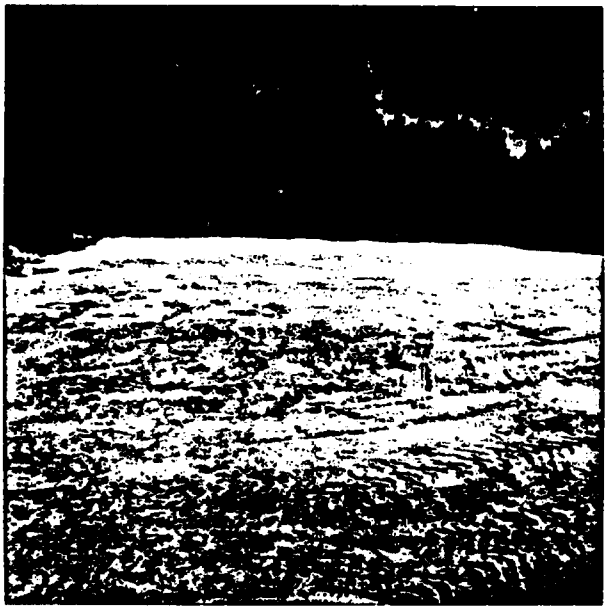
County Name WALTON
Picture No 1 of 2
Site Name H.M. Arnold Company
Date 5-1-84 Weather Partly Cloud
Direction Facing NW
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph of the decontamination station that was set up to clean trucks
Other: transporting the waste material off site Note excavated pile of soil in the back ground.

County Name WALTON
Picture No 2 of 2
Site Name H.M. Arnold Company
Date 5-1-84 Weather Partly cloudy
Direction Facing East
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph of the culvert that drains all materials off site. This area
Other: had a high percentage of pesticides present and therefore excavated accordingly

Photo 3

County Name WALTON
Picture No 3 of 4
Site Name H.M. Arnold Company
Date 5-10-94 Weather Clear
Direction Facing South
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph of the drainage ditch that lies parallel to the railroad tracks.
Other: Excavation of the soils surrounding the culvert at the site was completed to insure against future contamination.

County Name WALTON
Picture No 4 of 4
Site Name H.M. Arnold Company
Date 5-10-94 Weather Clear
Direction Facing North West
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph of the "holding pen" area to the west of the warehouse building.
Other: Sawhorses in picture are where the decontamination station was set up. Warehouse is in upper right of photograph.



5

County Name WALTON
Picture No 1 of 4
Site Name H.M. Arnold Compa
Date 5-10-94 Weather Clear
Direction Facing N.E.
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph of the excavated area North of the warehouse building. The area
Other: excavated has been leveled off and capped for proper drainage.

County Name WALTON
Picture No 2 of 4
Site Name H.M. Arnold Compa
Date 5-10-94 Weather Clear
Direction Facing West
Photographer Jeff Williams
Program RAU (IHWMP)
Explanation: Photograph at the rear of the site showing extent of excavations
Other: Note the clay like filler material that is covered by a layer of gravel for proper drainage.

APPENDIX B

LAND PROTECTION BRANCH
HAZARDOUS WASTE ANALYSIS REQUEST

DATE: 5-7-84 PROJECT: Chevron Agrichemical Co COLLECTOR: Jeff Williams

NO. SAMPLES: 3 LOG NOS. 758-760 LIQUID _____ SOLID _____ SOIL ✓

CAUSTIC _____ ACID _____ SOLVENT _____ UNKNOWN _____ SLUDGE _____

INFORMATION FOUND: Suspected DDT, DDD, Lindane pesticide residues within the soil

HAZARDOUS WASTE NOS. CERCLA Clean up - Unregulated PESTICIDE CONTAMINATED

HAZARDOUS HANDLING: Low Hazard

WORK PRIORITY (CRITICAL NEED) Normal

METALS ANALYSES

	TOT	DIS			
METALS (DW NO Hg)	☐	☐	EP METALS (DW NO Hg) ☐	100X ☐	30X ☐
METALS (DW WITH Hg)	☐	☐	EP METALS (DW WITH Hg)		

	TOT	DIS		TOT	DIS				
NICKEL	☐	☐	CADMIUM	☐	☐	EP NICKEL	☐	EP CADMIUM	☐
ARSENIC	☐	☐	LEAD	☐	☐	EP ARSENIC	☐	EP LEAD	☐
CHROMIUM	☐	☐	MERCURY	☐	☐	EP CHROMIUM	☐	EP MERCURY	☐
CHROM-HEX	☐	☐	SELENIUM	☐	☐	EP CHROM-HEX	☐	EP SELENIUM	☐
_____	☐	☐	_____	☐	☐	_____	☐	_____	☐

SPECIFIC ANALYSES

pH	☐	SULFIDE	☐	% SOLIDS	☐
FLASH PT	☐	SP.COND.	☐	TOT. PHENOLS	☐
CYANIDE TOT.	☐	TOC	☐	CHLORIDE	☐
CYANIDE AM.	☐	TOH	☐	FLUORIDE	☐

ORGANIC ANALYSES

PESTICIDE SCREEN (EC)	☑	GC-MS ACID EXTRACTABLES	☐
PCB	☐	GC-MS BASE/NEUTRALS	☐
VOLATILE ORGANICS (VOA)	☐		

SPECIFIC ORGANICS: ~~Chlorinated Hydrocarbons~~

APPROVED: S. Hackett 17 AUTHORIZED: _____

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

LABORATORY REPORT

SAMPLE
DATE: 5-7-84 PROJECT: Chevron Agricultural C. COLLECTOR: Jeff Lewis

HW LOG NO.

DATE REC'D 5-8-84 LABEL

TIME REC'D 1600 hrs

REC'D BY: D Lanford

DEL BY: [redacted]

Harold Lanford
LABORATORY MANAGER

DATE:

PARAMETERS	LAB NO.		758	759	760		
			CAS 1	CAS 4	CAS 8		
			Soil	Soil	Soil		
			Area 1	Area 4	Area 8		
α BHC	ug/kg	dry	<1	1050	14		
β BHC	"	"	<1	690	8		
Lindane	"	"	1.4	2470	47		
Δ BHC	"	"	<1	370	12		
p,p DDT	"	"	<1	26,900	790		
o,p DDT	"	"	<1	6400	190		
p,p DDE	"	"	<1	950	140		
p,p DDD	"	"	<1	810	30		

REMARKS:

IT CORPORATION

SAMPLE CHAIN OF CUSTODY FORM

Date Sample Taken: 5/6/84 Sample Number: GF9148, GF9150-6

Time Sample Taken: 1pm IT Lab Number:

Person Taking Sample: John Ragsdale

Sample Location: 137 East Famborough Street, Monroe GA previous chevron Agri Chemical plant

Reason For Sampling: Contaminated soil Excavation and disposal of soil-

Other Related Samples (Taken by IT or other organization):

Type of Sample: ☐ Liquid ☐ Gas ☐ Sludge ☑ Other (specify): soil

Container Size: 16 oz Container Type: Glass

Quantity of Sample Taken: 1 16oz jar

Person whom results, original of this form and remaining sample should be returned t

SAMPLE TRANSFER

		(Name)	(Organization)	(Date/Time)
1	Relinquished by:	John W Ragsdale III	IT Corp	5/7/84 11 Am
	Received by:	[illegible] Williams	GA DNR	5/7/84 11 Am
2	Relinquished by:			
	Received by:			
3	Relinquished by:			
	Received by:			

GEORGIA ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH

CHAIN OF CUSTODY

FACILITY: H.M. Arnold Co. - Chevron Agri. Co. LOCATION: 137 E Fo[illegible]

SAMPLE #	LOG #	LAB I.D.	DESCRIPTION	COLLECTED BY (Name)	DATE	TIME
AS1	758		Soil Area 1	Jeff Williams	5-7-84	[illegible]
AS4	759		Soil Area 4	Jeff Williams	5-7-84	[illegible]
AS8	760		Soil Area 8	Jeff Williams	5-7-84	[illegible]
			RECEIVED			
			MAY 9 1984			

TRANSFER RECORD

TRANSFERRED BY (Name)	TO (Name) (IF FINAL: Lab Name)	DATE	TIME	METHOD OF TRANSFER	RECEIVED BY (Name)	DATE
Jeffrey M Williams	Shirley Maxwell	5-7-84		HAND	Harold Langford	
Shirley Maxwell	EPD lab.	5/7/84		Land		

ANALYSES REQUESTED: Pesticide Scan (EC) method on CAS 1 CAS 4, CAS 8

Chevron Chemical Company
595 Market Street, San Francisco, California
Mail Address: P.O. Box 7145, San Francisco, CA 94120-7145

June 15, 1984

Monroe, Georgia
Remedial Work

Mr. Joseph T. Surowiec
Georgia Environmental Protection Division
3420 Norman Berry Dr.
Hapeville, GA 30354

Dear Mr. Surowiec:

Under Chevron Chemical Company's supervision, I.T. Corporation performed remedial work at our former agricultural chemical site in Monroe, Georgia. Site work began on May 1, 1984 and was completed on May 9, 1984. Following is a brief summary of the work included:

1) I.T. excavated and transported more than 1200 tons of contaminated soil from the site to the Pinewood, South Carolina disposal facility.

2) Childscapes Inc., the present site occupant, vacuumed contaminated dust from the warehouse with equipment supplied by I.T. The dust was disposed of with the contaminated soil from the site.

3) After excavation a metal locator was used to verify that no buried debris remained.

4) Eighteen soil and air samples were taken during the remedial work and analyzed for pesticide contamination.

5) The excavated areas were backfilled with a local red clayey soil which was compacted and graded to form an impervious cap. Crushed rock was spread, compacted and graded to complete the site work.

Attached for your review are copies of I.T.'s air and soil sampling reports and Ecology and Environment's results of analysis of soil samples.

ecology and environment, inc.
ANALYTICAL SERVICES CENTER, P.O. BOX D, BUFFALO, NEW YORK 14225, TEL. 716-631-0360
International Specialists in the Environmental Sciences

June 14, 1984

Mr. R.L. Timmel
Chevron Chemical Co.
P.O. Box 7145
595 Market Street
San Francisco, CA 94120-7145

Dear Mr. Timmel:

Enclosed are the amended results of analyses of soil samples and EP Toxicity Tests from Monroe, Georgia.

We thank you for the opportunity to work with you; if you have any questions, please call.

Very truly yours,

Gary Hahn/jcn

Gary Hahn, Manager
Analytical Services Center

GH/jb
enclosures

ecology and environment, inc.
International Specialists in the Environmental Sciences

LABORATORY REPORT

FOR

Chevron Chemical Company

Job No.: U-0177

Sample Date: 5/6/84 Sampled By: Client

Date Received: 5/8/84 Delivered By: Federal Express

Sample Type: Soil

RESULTS OF CHEMICAL ANALYSIS OF EXTRACTS FROM EP TOXICITY TESTS

	mg/L			Maximum* Allowable Concentration (mg/L)
E & E Lab Number	2193	2199	2200	
Customer Number	GF 9153	GF 9159	GF 9160	
Sample Location No.	5	11	12	
Arsenic	<0.005	<0.005	<0.005	5.0
Endrin	<0.000006	<0.000006	<0.000006	0.02
Lindane	0.0002	0.0003	0.0015	0.4
Methoxychlor	<0.00024	<0.00024	<0.00024	10.0
Toxaphene	<0.00024	<0.00024	<0.00024	0.5
Aldrin	<0.000004	<0.000004	<0.000004	
a-BHC	0.00036	0.00002	<0.000003	
b-BHC	<0.000006	0.00100	0.00098	
d-BHC	<0.000009	<0.000009	<0.000009	
Chlordane	<0.000014	<0.000014	<0.000014	
4,4'-DDD	<0.000011	<0.000011	<0.000011	
4,4'-DDE	<0.000004	<0.000004	<0.000004	

RESULTS OF CHEMICAL ANALYSIS OF EXTRACTS FROM EP TOXICITY TESTS (Cont.)

	mg/L			Maximum* Allowable Concentration (mg/L)
E & E Lab Number	2193	2199	2200	
4,4'-DDT	<0.000012	<0.000012	<0.000012	
o, p DDD	<0.000012	<0.000012	<0.000012	
Dieldrin	<0.000002	<0.000002	<0.000002	
Endosulfan I	<0.000014	<0.000014	<0.000014	
Endosulfan II	<0.000004	<0.000004	<0.000004	
Endosulfan sulfate	<0.000066	<0.000066	<0.000066	
Endrin.aldehyde	<0.000023	<0.000023	<0.000023	
Heptachlor	<0.000003	<0.000003	<0.000003	
Heptachlor epoxide	<0.000083	<0.000083	<0.000083	
PCB - 1016	<0.000005	<0.000005	<0.000005	
PCB - 1221	<0.000005	<0.000005	<0.000005	
PCB - 1232	<0.000005	<0.000005	<0.000005	
PCB - 1242	<0.000005	<0.000005	<0.000005	
PCB - 1248	<0.000005	<0.000005	<0.000005	
PCB - 1254	<0.000005	<0.000005	<0.000005	
PCB - 1260	<0.000005	<0.000005	<0.000005	

Analytical References:

"Test Methods for Evaluating Solid Waste Physical/Chemical Methods", SW-846 Second Edition, U.S. EPA, 1982.

*Federal Registrar Vol. 45 No. 98/Monday, May 19, 1980, Part 261.24 Characteristic of EP Toxicity.

Supervising Analyst Gary Tabor

Date: 6-14-84

ANALYSIS OF SOIL SAMPLES FOR ORGANO CHLORINE PESTICIDES, PCB'S AND ARSENIC
Results in mg/kg as received

Sample Identification	GF-9150	GF-9148	GF-9151	GF-9152	GF-9153
Lab #84-	2189	2190	2191	2192	2193
Sample Location No.	1	2	3	4	5
Compound					
Aldrin	<0.0002	<0.0002	0.37	<0.0002	0.0002
a-BHC	<0.0002	<0.0002	<0.0002	<0.0002	0.37
b-BHC	0.003	0.07	0.06	3.1	2.1
g-BHC	<0.0002	0.004	0.002	0.98	0.58
d-BHC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlordane	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
4,4'-DDD	<0.0006	0.003	<0.0006	0.50	0.59
4,4'-DDE	<0.0002	0.006	0.45	1.4	0.29
4,4'-DDT	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
o,p-DDD	<0.0006	0.0006	1.68	0.0006	1.28
Dieldrin	<0.0001	0.009	<0.0001	<0.0001	<0.0001
Endosulfan I	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Endosulfan II	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Endosulfan sulfate	<0.003	<0.003	<0.003	<0.003	<0.003
Endrin	<0.0003	0.19	0.81	2.0	0.87
Endrin aldehyde	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Heptachlor epoxide	<0.004	<0.004	<0.004	<0.004	<0.004
Toxaphene	<0.005	<0.005	<0.005	<0.005	<0.005
PCB - 1016	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1221	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1232	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1242	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1248	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1254	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1260	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic	1.00	1.19	1.58	0.87	7.20

< = less than

ANALYSIS OF SOIL SAMPLES FOR ORGANO CHLORINE PESTICIDES, PCB'S AND ARSENIC
Results in mg/kg as received

Sample Identification	GF-9154	GF-9155	GF-9156	GF-9157	GF-9158
Lab #84-	2194	2195	2196	2197	2198
Sample Location No.	6	7	8	9	10
Compound					
Aldrin	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
a-BHC	0.17	<0.0002	<0.0002	<0.0002	0.12
b-BHC	0.94	1.6	0.06	0.01	0.17
g-BHC	0.12	0.036	<0.0002	<0.0002	0.12
d-BHC	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Chlordane	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
4,4'-DDD	0.34	0.99	<0.0006	0.004	<0.0006
4,4'-DDE	0.71	1.29	0.37	0.05	0.41
4,4'-DDT	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
o,p-DDD	1.72	0.76	0.65	<0.0006	1.04
Dieldrin	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Endosulfan I	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
Endosulfan II	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Endosulfan sulfate	<0.003	<0.0003	<0.0003	<0.0003	<0.0003
Endrin	0.19	1.46	0.06	0.10	0.48
Endrin aldehyde	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Heptachlor epoxide	<0.004	<0.004	<0.004	<0.004	<0.004
Toxaphene	<0.005	<0.005	<0.005	<0.005	<0.005
PCB - 1016	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1221	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1232	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1242	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1248	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1254	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
PCB - 1260	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Arsenic	2.73	3.15	1.78	1.7	1.7

< = less than

ANALYSIS OF SOIL SAMPLES FOR ORGANO
CHLORINE PESTICIDES, PCB'S AND ARSENIC
Results in mg/kg as received

Sample Identification	GF-9159	GF-9160
Lab #84-	2199	2200
Sample Location No.	11	12
Compound		
Aldrin	<0.0002	<0.0002
a-BHC	0.04	<0.0002
b-BHC	1.24	10.2
g-BHC	0.33	2.79
d-BHC	<0.0005	<0.0005
Chlordane	<0.0007	<0.0007
4,4'-DDD	0.16	1.4
4,4'-DDE	0.89	1.7
4,4'-DDT	<0.0006	<0.0006
o,p-DDD	6.79	1.0
Dieldrin	<0.0001	<0.0001
Endosulfan I	<0.0007	<0.0007
Endosulfan II	<0.0002	<0.0002
Endosulfan sulfate	<0.003	<0.003
Endrin	0.48	1.8
Endrin aldehyde	<0.001	<0.001
Heptachlor	<0.0002	<0.0002
Heptachlor epoxide	<0.004	<0.004
Toxaphene	<0.005	<0.005
PCB - 1016	<0.0025	<0.0025
PCB - 1221	<0.0025	<0.0025
PCB - 1232	<0.0025	<0.0025
PCB - 1242	<0.0025	<0.0025
PCB - 1248	<0.0025	<0.0025
PCB - 1254	<0.0025	<0.0025
PCB - 1260	<0.0025	<0.0025
Arsenic	1.33	0.97

< = less than

IT CORPORATION

IT FIELD SERVICES

May 23, 1984

Mr. R. L. Timmel
Project Engineer
595 Market St.
San Francisco, CA 94120

Dear Mr. Timmel:

Enclosed is the report concerning the process used by IT Field Services in collecting samples following excavation of pesticide-contaminated soil at the former Chevron Chemical Co. plant site in Monroe, GA. Also included is a sketch of the sampling points and copies of the chain of custody forms.

As always IT Corporation appreciates the opportunity to be of service to Chevron Chemical Co. If you have any questions, please do not hesitate to contact me.

Sincerely,

John W. Ragsdale III
Field Superintendent

JWR/sw

Enclosures

IT CORPORATION

IT FIELD SERVICES

A REPORT OF THE SAMPLING METHODOLOGY
DURING EXCAVATION OF PESTICIDE-CONTAMINATED SOIL
AT A FORMER CHEVRON CHEMICAL COMPANY PLANT SITE
IN MONROE, GEORGIA

MAY 21, 1984

PREPARED FOR:

R. L. TIMMEL
CHEVRON CHEMICAL COMPANY
595 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94120

SAMPLING METHODOLOGY

IT Corporation completed the excavation and transportation of pesticide-contaminated soil for disposal from a former Chevron Chemical Company agricultural chemical formulation plant site, 137 Farmborough St., Monroe, GA. Approximately 1200 cubic yards of pesticide-contaminated soil was transported by IT Corporation's subcontractor, Willms Trucking Company, Inc. to SCA Chemical Services, Inc., Pinewood, S.C. for disposal by land burial. Contamination depth was determined by samples analyzed by Ecology and Environment, Inc. laboratories (E&E). Therefore, depth of excavation was only .5-1.0 foot over most of the site except in front of the two west side loading dock doors, where the excavation depth was extended to 2-2.5 feet. For the most part, the pesticide-contamination was contained in the top soil and did not extend into the impermeable clay, sub-soil, hence, the soil in the excavation was removed down to the undisturbed clay beneath.

After excavation of the contaminated soil was complete, composite samples of soil from the excavation floor surface were collected for documentation to determine effectiveness of the cleanup operation. The excavation site was divided into sections numbered 1 through 12 (see Figure 1). In each section, a composite sample was collected and split with Georgia Department of Natural Resources. In sections 1 and 2, samples were collected from five sites in each section and composited into one sample for each section. In sections 3 through 8, samples were collected from nine sites for composites for each section and in sections 9 through 12, samples were collected from 12 sites in each section for composite samples. The thin top surface

of the excavation floor was scraped away before each sample was taken to avoid cross-contamination tracked by the excavation and loading equipment. All samples were collected from the excavation floor approximately 0-2 inches deep at each sample site. Each of the composite samples were collected using a metal trowel washed with detergent, rinsed with distilled water and again with hexane. Each composite sample was placed on an aluminum foil sheet and mixed well, then each was split and placed into 16 oz. pre-cleaned glass containers with screw lids and teflon liners.

Samples collected for Chevron were packed and shipped by Federal Express to Ecology and Environment, Inc. laboratories, Buffalo, NY for analysis prearranged by R. L. Timmel, Chevron Chemical Co. Samples split for the Georgia Department of Natural Resources were received on site by Jeffrey Williams, DNR Environmental Specialist.

In addition to soil samples shipped to E&E for analysis, three quality control samples were included. These samples included field rinse hexane, field rinse distilled water and an empty sample jar for a field travel blank. Strict chain of custody procedures were followed during sampling and shipping of samples. Chain of custody seals were placed on each samples container lid to be broken only upon receipt of samples by E&E. Each seal was signed and dated. Also, chain of custody forms were completed with the original accompanying the samples and copies being retained (see attachments).

After the sampling was completed, two types of backfill were delivered to replace the contaminated soil that was removed and to provide a functional vehicle travel surface for the plant site. First, approximately 500 cubic yds. of a clay with sand backfill was graded and rolled in order to ensure proper drainage and to provide a base for the rest of the backfill material. Next, approximately 1,100 tons of a crusher-run rock material was graded and rolled to complete the backfill process.

IT CORPORATION

SAMPLE CHAIN OF CUSTODY FORM

Date Sample Taken: 5/6/84 Sample Number: GF9148, GF9150 -

Time Sample Taken: 1pm IT Lab Number:

Person Taking Sample: John Ragsdale

Sample Location: 137 East Famborough Street, Monroe GA previous chevron Agri Chemical plant

Reason For Sampling: Contaminated soil Excavation and disposal of soil -

Other Related Samples (Taken by IT or other organization):

Type of Sample: ☐ Liquid ☐ Gas ☐ Sludge ☑ Other (specify): soil

Container Size: 16 oz Container Type: Glass

Quantity of Sample Taken: 1 16oz jar

Person whom results, original of this form and remaining sample should be returne

SAMPLE TRANSFER

1	Relinquished by:	John W Ragsdale III	IT Corp	5/7/84 11
	Received by:	[illegible] Williams	GA DNR	5/7/84 11
2	Relinquished by:	(Name)	(Organization)	(Date/Time)
	Received by:	(Name)	(Organization)	(Date/Time)
3	Relinquished by:	(Name)	(Organization)	(Date/Time)
	Received by:	(Name)	(Organization)	(Date/Time)

Proj. No.	Project Name					NO. OF CONTAINERS	REMARKS
	Chevron Chemical Co Monroe						
SAMPLERS: (Signature)	John W Ragsdale III						
Sach STA. NO.	DATE	TIME	COMP	GRAB	Sample STATION LOCATION		
1	5/6/84		X		~~GF 9148~~ GF 9150	1	
2	5/6/84		X		GF 9148	1	
3	5/6/84		X		GF 9151	1	
4	5/6/84		X		GF 9152	1	
5	5/6/84		X		GF 9153	1	
6	5/6/84		X		GF 9154	1	
7	5/6/84		X		GF 9155	1	
8	5/6/84		X		GF 9156	1	
9	5/6/84		X		GF 9157	1	
10	5/6/84		X		GF 9158	1	
11	5/6/84		X		GF 9159	1	
12	5/6/84		X		GF 9160	1	
	5/6/84			X	GF 9148		Field Hexane
	5/6/84			X	GF 9161		Field Blank Empty
	5/6/84			X	GF 9162		½ Gallon Field DI H2O

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
John W Ragsdale III	5/7/84 4p				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	

25

IT CORPORATION

May 15, 1984

Mr. R. L. Timmel
Project Engineer
Chevron Chemical Co.
595 Market Street
San Francisco, CA 94120

Dear Mr. Timmel:

Enclosed are the results of the air monitoring conducted at Childscapes, Monroe, GA on May 1, 1984. Both area and personnel air monitoring was conducted by collecting the potentially contaminated air onto 0.8 micron mixed cellulose ester fiber (MCE) filters at a flow rate of approximately 1.50 liters per minute (lpm) using select personnel sampling pumps (MSA and DuPont).

Sampling was performed in accordance with NIOSH Sampling Data Sheet #S309 and 29 CFR 1910.1018.

Personnel and area monitoring was conducted inside the warehouse during the vacuum cleaning decontamination operations. For results see Table 1. Workers wore disposable coveralls and "3-M Airhat" powered air purifying respirators (PAPR).

Air monitoring (personnel and area) was also conducted at various points around the worksite. See Table 1 for results.

Samples were sent to Environmental Health Laboratory (Hartford, CT) and analyzed using NIOSH P&CAM #139 (See attached lab results, Table 2).

I would like to thank you for the use of the MSA sampling pumps used during this project. If you have any questions please contact me.

Very truly yours,

Corey W. Briggs

Corey W. Briggs
Health and Safety Coordinator

jn

Enclosure

Location	Pump #	Sample #	Start	Finish	Total Time (Min)	Flow Rate (lpm)	Volume (liters)	Result (mg)	Result ($\mu g/m^3$)	(8 hr TWA) $\mu g/m^3$
Middle of Warehouse Approx. 4 ft. off floor*	MSA M-17	15291	0835	1502	387	1.49	577	ND <0.0005	0.87	0.70
Personnel** (Vacuuming)	MSA M-31	18457	0833	1602	420	1.50	630	0.023	36.5	31.9
Blank*	N/A	17715	N/A	N/A	N/A	N/A	N/A	ND <0.0005	NA	NA
Rear of support truck downwind from decon	6284	18363	1200	1753	353	1.52	537	ND <0.0005	0.93	0.68
Area rear of bldg. platform at Hotline approx. 5 ft. off ground	DuPont 6297	18326	0750	1450	420	1.50	630	ND <0.0005	0.80	0.70
Rear of site adjacent to railraod tracks downwind	MSA M-10	15289	1518	1744	146	1.51	221	ND <0.0005	2.26	0.68
Personnel Laborer	DuPont 5039	18366	0742	1430	408	1.51	617	ND <0.0005	0.81	0.69

*Samples taken in warehouse during vacuum cleaning operations
**Worst case sample. Worker was vacuuming essentially in a confined space situation near the roof.

TABLE 2

ENVIRONMENTAL HEALTH LABORATORY
94 Murphy Rd. • Hartford, CT 06114
(800) 243-4903 • IN CT (203) 522-3814
LABORATORIES IN MACON, GA. AND HARTFORD, CT.

No. H84E012

LABORATORY ANALYSIS REPORT

SAMPLE CONTAINER NO.	ANALYZED FOR	METHOD OF ANALYSIS	ANALYTICAL RESULTS	
	Arsenic	*Hydride Generation AA	mg	
18363	"	"	ND <0.0005	.93 ug/m³ =
18326	"	"	ND <0.0005	.84 ug/m³ =
Blank 17715	"	"	ND <0.0005	—
15291	"	"	ND <0.0005	.87 ug/m³ =
18457	"	"	0.023	36.5 ug/m³ =
15289	"	"	ND <0.0005	2.26 ug/m³ =
18366	"	"	ND <0.0005	.81 ug/m³ =

SPECIAL REMARKS:

ND = none detected
< = less than
*Modified NIOSH P&CAM #139

CHEMIST Joanne Sullivan (Signature) DATE May 8, 1984

APPENDIX C

REFERENCES

1. Cressler, C.W., Thurmond, C.J., Hester, W.G., 1983, Groundwater in the Greater Atlanta Region: U.S. Geologic Survey Information Circular 63, p. 144.

2. Thomson, M.T., Herrick, S.M., Brown, Eugene, 1956, The Availability and Use of Water in Georgia; Georgia Geologic Survey Bulletin 65.

3. Odom, Ron R., McCollum, Neville, Mary Anne and Ettman, David R., 1977, Georgia's protected wildlife: Georgia Dept. of Nat. Resources.

4. McCollum, Jerry L., and Ettman, David R., 1977, Georgia's protected plants: Georgia Dept. of Nat. Resources.

5. Wharton, Charles H., 1978, The natural environments of Georgia: Georgia Dept. of Nat. Resources.

6. Soil Survey of Walton County, Georgia: U.S. Dept. of Agriculture, Soil Conservation Service, 1961.

7. Hawley, Gessner G., 1981, The condensed chemical dictionary: Van Nostrand Reinhold Co., New York, N.Y.

8. Sax, N. Irving, 1979, Dangerous properties of industrial materials: Fifth edition, Van Nostrand Reinhold Company.

9. Ecology and Environment Inc., 1984, An evaluation of the distribution of pesticide compounds in the soils surrounding a former Georgia agrichemical warehouse.

10. Stokes, W.R. III, Hale, T.W. Pearman, J.L. and Buel, G.R., 1983, Water resources data, Georgia, water year 1982: U.S. Geologic Survey Water Data Report GA-82-1.

APPENDIX D

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Arnold H.M. Co.	137 East Fambrough Street				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Monroe	GA	30655	Walton	147	10

09 COORDINATES: LATITUDE N33° 46' 57"6 | LONGITUDE W83° 42' 19"7

10 TYPE OF OWNERSHIP (Check one): ☒ A. PRIVATE ☐ B. FEDERAL _____ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER _____ ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
5 / 1 / 84 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1952 (BEGINNING YEAR) 1969 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR _____ (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☒ E. STATE ☐ F. STATE CONTRACTOR GA EPD (Name of firm) ☒ G. OTHER I.T. Corporation (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Jeffrey M. Williams	Envrionmental Specialist	GA EPD	(404)656-7404
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Claude W. Goodley	Environmental Specialist	GA EPD	(404)656-2836
John W. Ragsdale III	Environmental Specialist	I.T. Corp.	(615)690-3211
Mike Allred	Environmental Specialist	GA EPD	(404)656-7404
Thomas M. Westbrook	Environmental Specialist	GA EPD	(404)656-7404
			( )

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Robert L. Timmel	Project Engin.	595 Market Street	(415) 894-0636
Chevron Chemical Co.		San Francisco, CA	( )
		94120-7145	( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	1000 hrs	Clear, warm and windy

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Robert L. Timmel	Chevron Chemical Company	(415) 894-0636

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Jeffrey M. Williams	GA DNR	GA EPD	656-7404	5 / 1 / 84 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☒ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ E. SLURRY
- ☐ F. LIQUID
- ☐ G. GAS
- ☒ D. OTHER dust (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

- TONS: ____
- CUBIC YARDS: 1200 (soil)
- NO. OF DRUMS: ____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☒ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	1200	yd^3	Pesticide residues removed from
OCC	OTHER ORGANIC CHEMICALS			the site by excavation of 9 to
IOC	INORGANIC CHEMICALS			12 in. of surface soil.
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
PSD	DDT	50-29-3	Waste Spill	see App. B	
PSD	DDE	999	" "	"	
PSD	Lindane	58-89-9	" "	"	
PSD	Dieldrin	60-57-1	" "	"	
PSD	Aldrin	309-00-2	" "	"	
PSD	DDD	72-54-8	" "	"	
PSD	Endrin	72-20-8	" "	"	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Arsenic	7440-38-2	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Robert L. Timmel - Project Engineer - Chevron Chemical Co.
Ecology and Envrionment Inc. -"Evaluation Report of the Distribution Pesticide Compounds in the Soils Surrounding a Former Georgia Agrichemical Warehouse." (February 1983)
State - GA EPD Lab analyses and E & E Lab analyses.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ B. SURFACE WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ C. CONTAMINATION OF AIR 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☐ E. DIRECT CONTACT 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☒ F. CONTAMINATION OF SOIL 03 AREA POTENTIALLY AFFECTED: 2 (Acres)	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION Low level contamination of soils that contain residues of chlorinated pesticides.	☒ POTENTIAL	☐ ALLEGED
01 ☐ G. DRINKING WATER CONTAMINATION 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED
01 ☒ H. WORKER EXPOSURE/INJURY 03 WORKERS POTENTIALLY AFFECTED: 25	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☒ POTENTIAL	☐ ALLEGED
01 ☐ I. POPULATION EXPOSURE/INJURY 03 POPULATION POTENTIALLY AFFECTED: _____	02 ☐ OBSERVED (DATE: _____) 04 NARRATIVE DESCRIPTION	☐ POTENTIAL	☐ ALLEGED

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/Runoff/Standing liquids, Leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 0

IV. COMMENTS

No known potential hazardpresently exist at the site.

V. SOURCES OF INFORMATION *(Cite specific references, e.g. state files, sample analysis reports)*

Ecology and Environment Inc. - February 1983 - Report
Robert L. Timmel - Chevron Chemical Company
GA. EPD Files - H.M. Arnold Co.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				
☐ B. UIC				
☐ C. AIR				
☐ D. RCRA				
☐ E. RCRA INTERIM STATUS				
☐ F. SPCC PLAN				
☐ G. STATE (Specify)				
☐ H. LOCAL (Specify)				
☐ I. OTHER (Specify)				
☒ J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
☐ A. SURFACE IMPOUNDMENT		
☐ B. PILES		
☐ C. DRUMS, ABOVE GROUND		
☐ D. TANK, ABOVE GROUND		
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP	1200	yd^3
☒ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCENERATION
- ☐ B. UNDERGROUND INJECTION
- ☐ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ☐ E. WASTE OIL PROCESSING
- ☐ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ☒ H. OTHER (Specify) Excavation of soils at the site

05 OTHER

☐ A. BUILDINGS ON SITE

Warehouse

06 AREA OF SITE

2 (Acres)

07 COMMENTS

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

☒ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC

Pesticide residues have been contained and removed from the surface soils at the site.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☒ YES ☐ NO

02 COMMENTS

All waste materials have been removed from the site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Robert L. Timmel - Chevron Chemical Company
Ecology & Envrionment Inc. - February 1983 Report
Site Inspection by Jeffrey M. Williams - 5/1/84/ - GA EPD.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ☒	B. ☐
NON-COMMUNITY	C. ☐	D. ☐

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ☐	B. ☐	C. ☐
D. ☐	E. ☐	F. ☐

03 DISTANCE TO SITE

A. 3 miles (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☒ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER none

03 DISTANCE TO NEAREST DRINKING WATER WELL 3 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
798 (ft)	unknown	170 (ft)	30 g/min (gpd)	☐ YES ☒ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

Most wells inthe Walton County area are not used for drinking water purposes. The private wells in Walton County are located in rural areas away from the subject site.

10 RECHARGE AREA		11 DISCHARGE AREA	
☒ YES ☐ NO	COMMENTS: Area is located in the Piedmont province of the state	☐ YES ☐ NO	COMMENTS

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Grubby Creek	☐	2 (mi)
Hard Labor Creek	☐	3 (mi)
	☐	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 1000 NO. OF PERSONS	B. 3000 NO. OF PERSONS	C. 6000 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

< 1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

75

04 DISTANCE TO NEAREST OFF-SITE BUILDING

< 1 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Site is located within the city limits and all residents have municipal water supplies from the Alcovy River.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☒ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-5} cm/sec) ☒ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH	
3-30 (ft)	2 (ft)	unknown	

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
44-59 (in)	(in)	2-6 %	Southwest	2-6 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. (mi)	B. (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

(mi)

ENDANGERED SPECIES:

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. 3 (mi)	B. .1 (mi)	C. (mi)	D. 4 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The Monroe area is located within the Piedmont Province of the State. Bedrock in the area consists of igneous and metaporphic rocks, specifically biotitic gneiss, mica schist and amphibolite rock types.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc.
February 2, 1984 - Report section 4-1

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	Four	Georgia Dept. of Nat. Resources- State Lab	
VEGETATION		Analysis	
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Soil samples	Four off site surface soil samples
Dust samples	Five bulk dust samples inside the warehouse bldg.
Airborne Particulate	Four ambient airborne particulate samples inside the bldg.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL U.S.G.S.

02 IN CUSTODY OF Jeffrey M. Williams GA EPD
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS U.S.G.S. 7-5 minute quadrangle of (Monroe, GA) (Between, GA)

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environmental, Inc. - Letter April 13, 1984
GA EPD Lab Analysis - June 14, 1984

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. CURRENT OWNER(S)				PARENT COMPANY *(If applicable)*			
01 NAME: Harry M. Arnold		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*: 217 Jackson Street		04 SIC CODE		10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE	
05 CITY: Monroe	06 STATE: GA	07 ZIP CODE: 30655		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE		10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE		10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	
01 NAME		02 D+B NUMBER		08 NAME		09 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE		10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		12 CITY	13 STATE	14 ZIP CODE	

III. PREVIOUS OWNER(S) *(List most recent first)*				IV. REALTY OWNER(S) *(If applicable; list most recent first)*			
01 NAME: (same as above)		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE		03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE		03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE		03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE		05 CITY	06 STATE	07 ZIP CODE	

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980566831

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Childscapes, Inc.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
137 East Fambrough St.	

05 CITY	06 STATE	07 ZIP CODE
Monroe	GA	30655

08 YEARS OF OPERATION	09 NAME OF OWNER
	Gene Pietso

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Chevron Chemical Co.	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
595 Market Street	

05 CITY	06 STATE	07 ZIP CODE
San Francisco	CA	94120-7145

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
14	Harry M. Arnold

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	
05 CITY	06 STATE / 07 ZIP CODE	

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY	06 STATE / 07 ZIP CODE	05 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☒ Z. AREA EVACUATED — 02 DATE 5-10-84 — 03 AGENCY I.T. Corp
04 DESCRIPTION

Aprox. 1200 yd^3 of soil

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION

SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis reports)*

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

November 11, 1984 reported by 103c Notification.

December 1983 - Chevron Chemical Co. contracts with Ecolgy and Environment to assess contamination at site.

February 1984 - Chevron Chemical Co. and GA EPD officials discuss a voluntary cleanup of Chevron's Former Agrichemical Plant.

May 10, 1984 - All remedial action has been performed and approved by GA EPD personnel.

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA FORM 2070-13 (7-81)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D980556831

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Arnold (H M) Co.	137 East Fambrough Street				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Monroe	GA	30655	Walton	147	10

09 COORDINATES LATITUDE: N 33° 46' 57".6 LONGITUDE: W 83°42'19".7

10 DIRECTIONS TO SITE (Starting from nearest public road): Take I-20 East to Social Circle, Monroe Exit - Hwy. 11. Take Hwy. 11 thru Social Circle to Monroe. Take right at East Fambrough St. and go ½ mi. White building on the left is site location.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)			
Harry M. Arnold	217 Jackson Street			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**	
Monroe	GA	30655	404)267-2285	
07 OPERATOR (If known and different from owner)	**08 STREET (Business, mailing, residential)**			
Chevron Chemical Company	595 Market Street			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**	
San Francisco	CA	94120-7145	(415)894-0636	

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☒ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: 6/9/81 (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☐ YES DATE ___/___/___ (MONTH DAY YEAR)
☒ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1952 (BEGINNING YEAR) | 1969 (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Chlorinated pesticides consisting of DDT, DDD, Lindane, Endrin, Aldrin, Dieldrin, and DDD.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Possible contamination of soils and groundwater due to the persistence and migration of these specific compounds. Possible worker exposure to airborne dust contaminants within the building.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Robert L. Timmel	Chevron Chemical Company	415)894-0636

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Jeffrey M. Williams	DNR	GA E.P.D.	404)656-7404	4/30/84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D 980556831

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [ ] A. SOLID
- [X] B. POWDER, FINES
- [ ] C. SLUDGE
- [ ] E. SLURRY
- [ ] F. LIQUID
- [ ] G. GAS
- [X] D. OTHER Dust (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [X] D. PERSISTENT
- [ ] E. SOLUBLE
- [ ] F. INFECTIOUS
- [ ] G. FLAMMABLE
- [ ] H. IGNITABLE
- [ ] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [ ] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES	unknown	unknown	pesticide residues believed to be remaining within the soils at the subject site.
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
PSD	DDT	50-29-3	Open Dump-Drums	unknown	unknown
PSD	DDE	999	Open Dump-Drums	unknown	unknown
PSD	Lindane	58-89-9	Open Dump-Drums	unknown	unknown
PSD	Dieldrin	60-57-1	Open Dump-Drums	unknown	unknown
PSD	Aldrin	309-000-2	Open Dump-Drums	unknown	unknown
PSD	DDD	72-54-8	Open Dump-Drums	unknown	unknown
PSD	Endrin	72-20-8	Open Dump-Drums	unknown	unknown

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Arsenic	7440-38-2	FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Robert L. Timmel - Project Engineer - Chevron Chemical Co.

Attachment A - Site Disposition

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
GA	D980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: unknown — 04 NARRATIVE DESCRIPTION

Possible migration of pesticides off site by surface water infiltration into the groundwater

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Possible contamination of Northern culvert at site by surface water runoff that may contain pesticide residues.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: 2 (Acres) — 04 NARRATIVE DESCRIPTION

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [X] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: 15-20 — 04 NARRATIVE DESCRIPTION

Possible airborne particulates within the warehouse building on the site that could result in onsite exposure of workers to toxic materials.

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE: _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
GA	D 980556831

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills, runoff, standing liquids, leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☒ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Possible contamination of offsite soils by surface water runoff from the site.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: Unknown

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

Robert L. Timmel - Chevron Chemical Company

Attachment A

Site Disposition

The subject site was assessed as a medium priority for inspection based on the following conclusions:

The contaminants involved are characteristically toxic and persistent within the environment. The chlorinated pesticides involved are virtually insoluble in water and are non-biodegradable within the soils they have contaminated. The marketing warehouse onsite is believed to be contaminated from past practices of this former agrichemical plant. Possible worker exposure inside the warehouse warrants my decision for a medium priority inspection.

JMW:bhr

EPA Notification of Hazardous Waste Site

R

United States
Environmental Protection
Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

810609

GAS000000175

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Chevron Chemical Co

Street: PO Box 3883

City: SF State: CA Zip Code: 94119

B Site Location:

Enter the common name (if known) and actual location of the site.

GAD980556831

Name of Site: H M Arnold Co.

Street: Fambrough St

City: Monroe County: State: GA Zip Code: 30655

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Bishop, KC Dr

Phone: 415 894 9076

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year) To (Year)

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☒ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☒ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____

_____

_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

POTENTIAL HAZARDOUS WASTE SITE SURVEY
FOR THE
COMPREHENSIVE, ENVIRONMENTAL RESPONSE, COMPENSATION
AND LIABILITY ACT OF 1980

*** THE DEFINITION OF HAZARDOUS SUBSTANCE FOR THIS REPORT IS THE REGULATION DEFINITION. IT DOES NOT MEAN THE SUBSTANCE IS 'HAZARDOUS' IN THE NORMAL SENSE OF THE WORD. IT CAN INCLUDE SUCH COMMON CHEMICALS AS FERTILIZER OR ORGANIC SOLVENTS. CHEVRON CHEMICAL CO. IS NOT AWARE OF ANY SIGNIFICANT HAZARD TO MAN OR THE ENVIRONMENT CREATED BY ANY OF THE FACILITIES AT THIS SITE. ***

SITE TYPE: AGRI CHEMICALS, MARKETING
CHEV CHEM CO
FAMBROUGH ST (SOUTH OF TOWN)
MONROE,GA
CURRENT OWNER: H M ARNOLD COMPANY
CURRENT OPERATOR: MR. C. SCAPES
STATUS OF INVOLVEMENT: PAST
CHEV CHEM CO. INVOLVEMENT: OPERATED

WASTE FACILITY	AREA	KIND OF WASTE	RELEASES
GROUND SPILLAGE		PESTICIDE	SUSPECTED

RELEASE EXPLANATION:

CHEVRON CHEMICAL IS CONSIDERING THIS LOCATION FOR FURTHER STUDY. THERE ARE POSSIBLE TRACE RELEASES TO THE GROUND WATER.

000252

K. C. BISHOP III, PH.D. (FOR CHEVRON CHEMICAL CO.)
SENIOR ENVIRONMENTAL ENGINEER
595 MARKET ST.
SAN FRANCISCO, CA 94105

SIGNATURE K C Bishop III DATE: 6/4/81

CC-263-D667

received 4/30/85
from Jeff Williams,
GA E'D concerning
HM Arndd

AN EVALUATION OF THE DISTRIBUTION OF PESTICIDE COMPOUNDS IN THE SOILS SURROUNDING A FORMER GEORGIA AGRICHEMICAL WAREHOUSE

February 2, 1984

Prepared for:

CHEVRON CHEMICAL COMPANY
595 Market Street
San Francisco, California 94119

ecology and environment, inc.
195 SUGG ROAD, P.O. BOX D, BUFFALO, NEW YORK 14225, TEL. 716-632-4491
International Specialists in the Environmental Sciences

TABLE OF CONTENTS

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1. INTRODUCTION

Ecology and Environment, Inc., (E & E) was retained by the Chevron Chemical Company (Chevron) to define the extent and concentrations of pesticide residues remaining in the soils surrounding a former Chevron agrichemical marketing warehouse at 137 East Fambrough Street in Monroe, Georgia. The site was leased by Chevron from approximately 1952 to 1969 from the current property owner H.M. Arnold. The site is presently occupied by a tenant, Childscapes, Inc.

In addition, E & E was to evaluate the potential for migration of any pesticide compounds at the site into the groundwater beneath the site and nearby water supply wells.

This report describes the investigation conducted by E & E. Following this introduction, Section 2 discusses the field sampling rationale and methodology. Section 3 presents the results of data analysis. Section 4 discusses site hydrology and Section 5 presents the summary and conclusions.

2. FIELD SAMPLING METHODOLOGY

During the week of December 12, 1984, E & E personnel conducted an on-site soil sampling program. First, a topographic survey of the site was undertaken to define those parts of the site that may have received pesticide residues as sediment from eroded surface soils. The site map on Figure 2-1 shows the results of this survey. Surface water on the northern half of the site drains to the northeast corner, from which it drains off-site through a culvert underneath the Georgia Railroad track. The southern half of the site drains eastward to another culvert beneath the tracks, located just south of the warehouse building.

During the life of the facility, containerized pesticides were occasionally stored in the back yard area north of the building. Prior to undertaking the sampling program, it was anticipated that this area might be more susceptible to pesticide contamination than the front yard employee parking area, south of the building. In addition, it was anticipated that occasional sweeping of the building's floors during the life of the facility might have resulted in some pesticide residues being swept out the building's loading doors.

Figure 2-1 shows the locations selected for soil sampling based on the topographic survey and knowledge of previous site operations. The basis of the sample locations was a grid system. The number of each location represents the order in which the locations were sampled.

Samples were obtained from each location at the surface, one-foot, and two-foot depths. In all accessible areas, this was done

with a truck-mounted, solid stem auger drilling rig. The augers were slowly screwed into the soil, and then withdrawn, so as to obtain a relatively undisturbed, depth-discrete plug of soil at each location. In inaccessible areas, such as next to the building or in the ditch along the railroad tracks, a hand, SCS-type bucket auger was used. Samples were placed in eight-ounce glass jars and shipped, using standard chain-of-custody procedures, to E & E's Analytical Services Center (ASC) in Buffalo, New York, for analysis.

To prevent sample cross-contamination, care was taken to decontaminate the solid-stem auger and hand auger after each use. Decontamination consisted of a wash with trisodium phosphate detergent and a water rinse. The stainless steel trowel used to take samples off the auger was cleaned in a similar manner after each use.

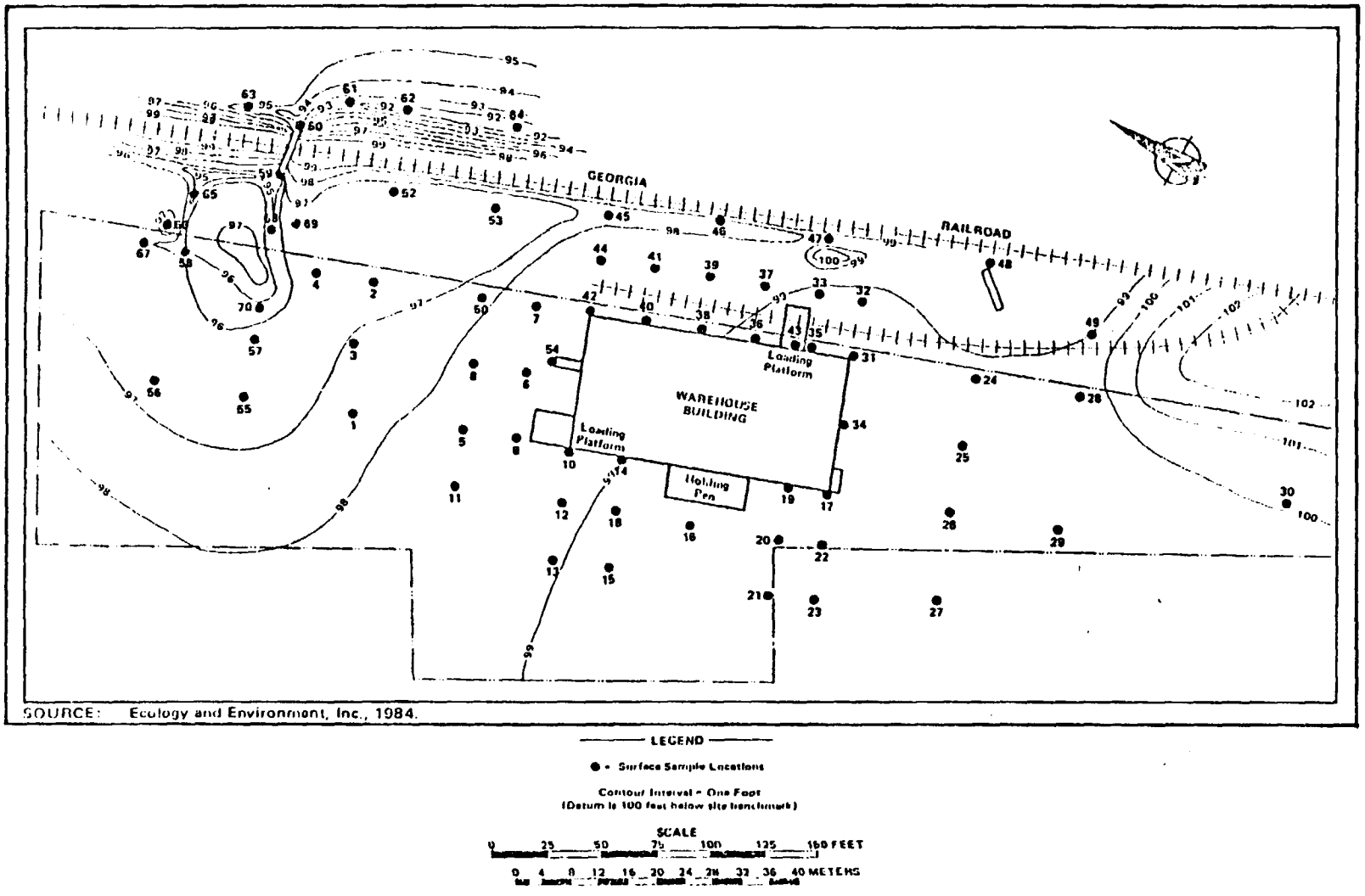

Figure 2–1 SITE TOPOGRAPHY AND SOIL SAMPLING LOCATIONS

3. FIELD DATA ANALYSIS

Figure 3-1 illustrates the sample analysis scheme used by E & E's ASC to analyze the soil samples for organic pesticides and arsenic. Composites were made up, as indicated on the figure, in broad areas which had exhibited no visible signs of contamination as well as in areas which, operationally, should not have been susceptible to contamination.

In the case of the sampling stations that were analyzed individually, the following protocol was generally used to determine whether or not the deeper samples were to be analyzed:

- Surface sample analyzed.
- One-foot samples analyzed if surface sample concentration was greater than 50 milligrams per kilogram (mg/kg).
- Two-foot sample analyzed if one-foot sample concentration was greater than 50 mg/kg.

The concentration level was based upon the sum of all the organic pesticide concentrations.

The data thus developed are presented in Table 3-1. Total organic pesticide concentrations at the surface and one-foot levels are presented on Figures 3-2 and 3-3, respectively. Arsenic concentrations are presented on Figure 3-4.

Pesticide concentrations generally appeared to be highest near the warehouse loading doors (soil sample locations 14, 19, 40, and 43) and in areas downslope of the suspected source areas. Soil samples south and west of the warehouse had relatively low concentrations of pesticides, with the exception of those near the loading doors. Soil samples to the north and east of the warehouse were often found to contain high concentrations of pesticides. In general, there was a good correlation between these results and the site drainage patterns.

The relatively high concentrations of pesticides extending toward and at sample location 58 were probably derived from a nearby mound of excavated soil where sample 66 was obtained. Sample 66 was found to contain a total organic pesticide concentration of 2,400 parts per million (ppm). Rainwater runoff presumably transported soil from the mound into the ditch at sample location 58.

Sample 59 exhibited a relatively high pesticide concentration since it is the lowest point of drainage west of the railroad tracks. The culvert adjacent to sample 59 only appeared to transport a small amount of pesticides to the eastern ditch along the railroad tracks, as indicated by the relatively low concentrations of pesticides found in samples 60 through 64.

The major sources of arsenic on the site appeared to be the soil beneath the north loading doors on the east and west walls of the warehouse. Arsenic migration also tended to follow the site drainage patterns. Concentrations of arsenic were found in the soil excavation mound at sample 66 and in the ditch east of the railroad tracks in samples 60 through 64.

The soils at the site seem to exhibit a strong adsorptive capacity, typical of soils containing clays. With two exceptions, sample locations 14 and 19, the concentrations present in the one-foot samples are, on the average, approximately two orders of magnitude less than in the overlying surface samples.

In order to better evaluate the potential for contaminated soils to release pesticides into solution via surface water runoff from the site, E & E's ASC used the United States Environmental Protection Agency (EPA) EP-Toxicity Test Extraction Procedure (Appendix II to 40 CFR Part 261) to obtain an extract from four of the surface soil samples collected on-site. Of the four samples selected, three (41-S,

45-S, and 59-S) were collected on-site in locations having relatively high contamination; one sample (64-S) was collected off-site in the drainage ditch downstream of the north culvert.

The ASC analyzed the extracts obtained from these samples using the same procedures used in developing the data shown in Table 3-1. The results thus obtained are shown in Table 3-2. Comparison of the data presented in Table 3-1 and Table 3-2 shows good correlation in terms of relative pesticide concentrations. That is, in both cases, the highest total concentrations found were for sample 45-S and the lowest for sample 64-S.

The major difference between the data presented in Tables 3-1 and 3-2 is in the absolute concentration levels. The levels reported in Table 3-2 are lower by at least a factor of 18,000 than those reported in Table 3-1. In terms of EP Toxicity, all of the concentrations reported on Table 3-2 are at least one order of magnitude less than the maximum allowable concentrations listed in 40 CFR Part 265.

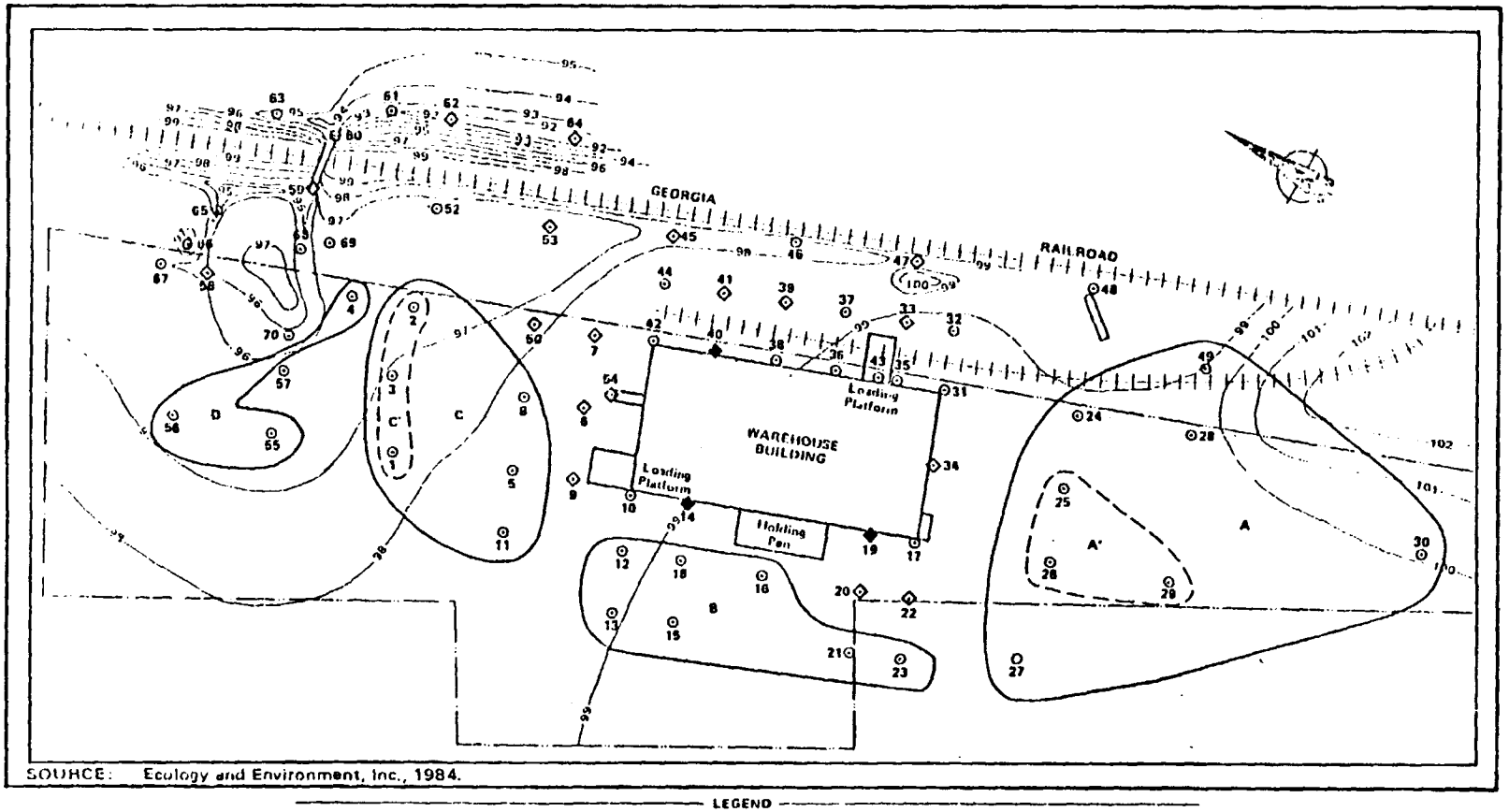

Figure 3–1 ANALYTICAL SCHEME USED TO EVALUATE SOIL SAMPLES

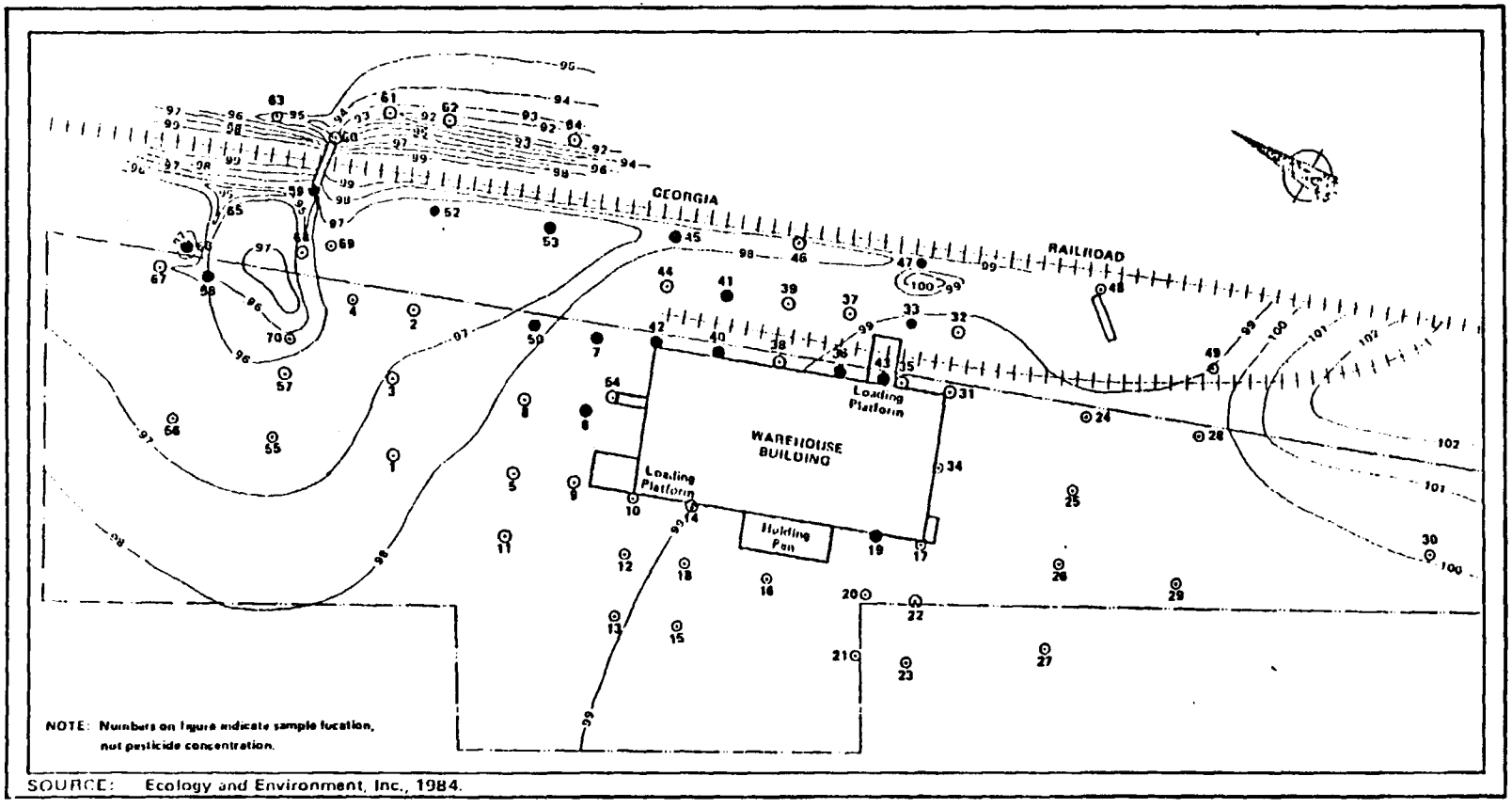

Figure 3–2 TOTAL ORGANIC PESTICIDE CONCENTRATIONS IN SURFACE SOIL SAMPLES IN mg/kg (ppm)

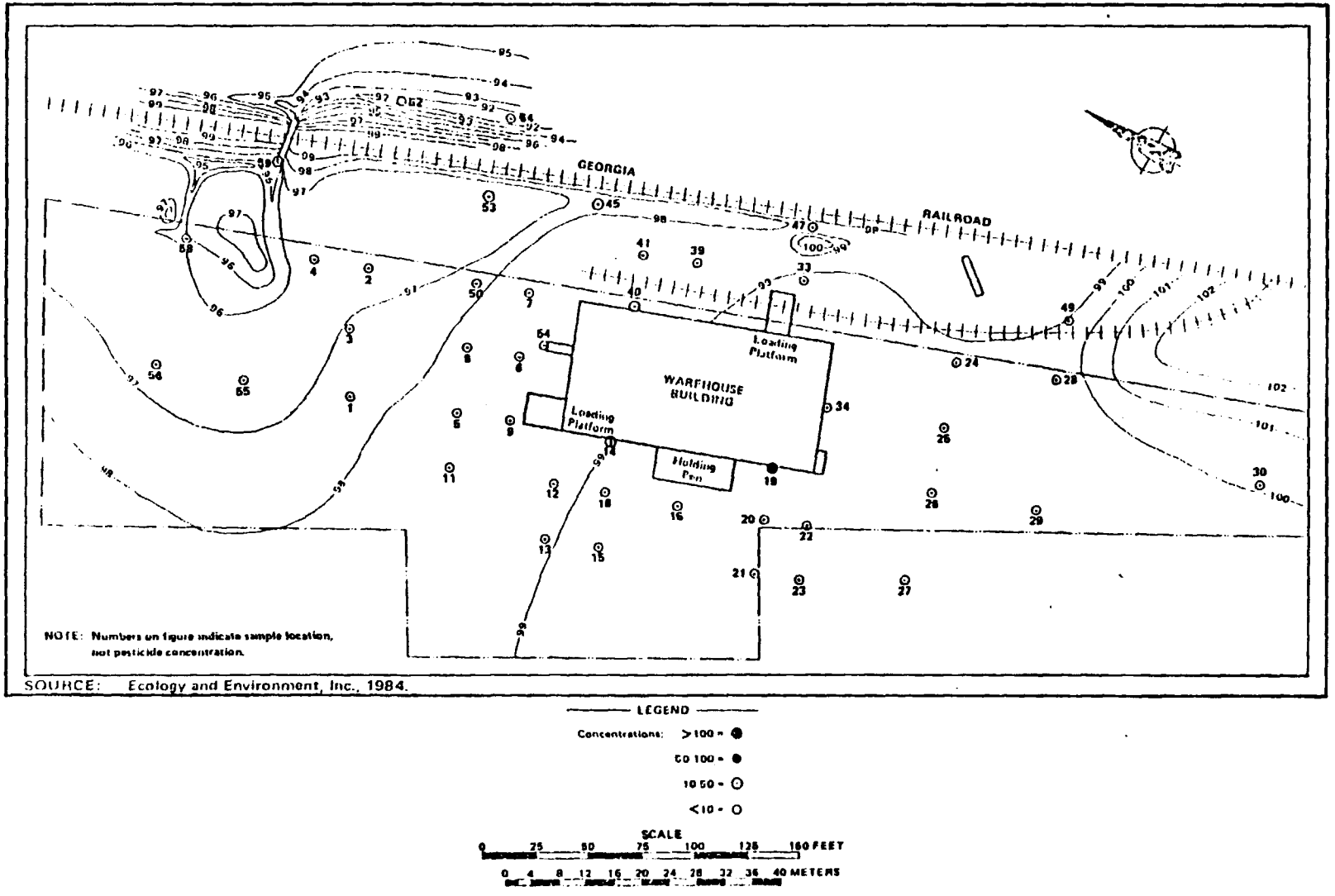

Figure 3–3 TOTAL ORGANIC PESTICIDE CONCENTRATIONS IN ONE-FOOT SOIL SAMPLES IN mg/kg (ppm)

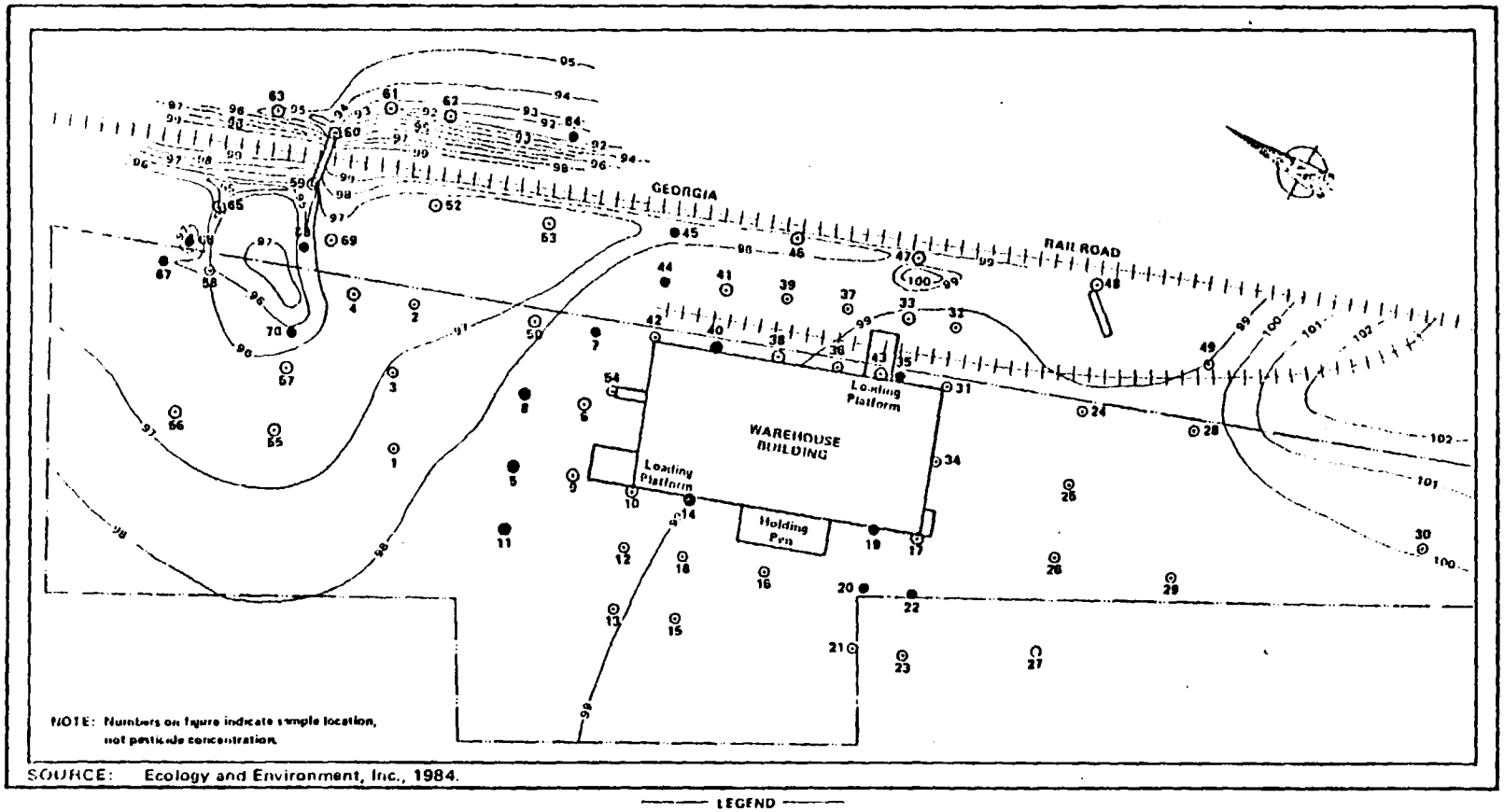

Figure 3–4 ARSENIC CONCENTRATIONS IN SURFACE SOIL SAMPLES IN mg/kg (ppm)

Table 3-1

PESTICIDE CONCENTRATIONS IN SOIL SAMPLES (mg/kg)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
Composite A surface	3.86	0.496	0.040	0.957	0.048	<.0001	0.066	0.334	0.248	.386	0.361	0.915	<.0001	<1.0
Composite A' 1.0 ft.	0.668	<.0002	<.0001	0.391	0.010	<.0001	<.0001	0.083	<.0001	<.0002	0.019	0.165	<.0001	2.6
Composite B surface	4.13	0.671	0.053	1.17	<.0002	<.0001	<.0001	0.263	0.186	.472	0.408	0.905	<.0001	<1.0
Composite B 1.0 ft.	0.444	0.040	0.020	0.130	<.0002	<.0001	<.0001	0.017	<.0001	.014	0.028	0.195	<.0001	2.9
Composite C surface	34.8	3.80	0.278	3.15	<.0002	<.0001	<.0001	1.96	2.67	5.44	1.91	15.6	<.0001	97
Composite C 1.0 ft.	1.83	0.290	0.023	0.451	<.0002	<.0001	<.0001	0.048	0.021	.090	0.091	0.813	<.0001	1.0
Composite C' surface	43.5	0.190	0.140	1.39	<.0002	<.0001	<.0001	4.90	9.90	<.0002	14.1	12.9	<.0001	2.9
Composite D surface	3.65	0.296	0.022	0.353	0.004	<.0001	<.0001	0.164	0.140	.233	0.311	2.13	<.0001	11
6-5	168	<.0002	1.38	<.0002	<.0002	<.0001	<.0001	72.2	25.7	19.4	28.7	20.8	<.0001	9.8
6-1	0.011	<.0002	0.005	0.005	<.0002	<.0001	<.0001	0.001	<.0001	<.0002	<.0002	<.0001	<.0001	24.4
7-5	286	41.0	20.8	61.2	<.0002	<.0001	<.0001	76.6	22.4	20.9	8.76	25.4	<.0001	57
7-1	4.05	0.822	0.057	0.566	<.0002	<.0001	<.0001	0.065	<.0001	0.253	0.261	2.03	<.0001	2.6
9-5	35.5	20.2	10.7	<.0002	<.0002	<.0001	<.0001	1.61	<.0001	<.0002	1.48	1.51	<.0001	10
9-1	0.573	0.176	0.008	0.115	<.0002	<.0001	<.0001	0.001	<.0001	0.020	0.020	0.233	<.0001	2.1

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
10-S	0.306	0.004	0.005	0.010	<.0002	<.0001	<.0001	0.089	0.091	<.0002	0.029	0.078	<.0001	46
14-S	35.9	0.139	0.418	0.298	<.0002	<.0001	<.0001	0.031	<.0001	<.0002	16.8	15.4	<.0001	200
16-1	27.3	0.060	0.291	0.316	<.0002	<.0001	<.0001	0.542	1.19	<.0002	14.2	10.7	<.0001	260
16-2	5.50	0.632	0.040	0.263	<.0002	<.0001	<.0001	0.210	0.267	0.472	0.576	2.93	0.108	6.1
17-S	2.20	<.0002	0.007	0.581	<.0002	<.0001	<.0001	0.625	<.0001	<.0002	0.98	0.005	<.0001	10
19-S	165	0.511	1.40	7.96	<.0002	<.0001	<.0001	0.061	12.6	<.0002	12.4	130	<.0001	68
19-1	156	0.015	0.029	0.333	0.009	0.069	<.0001	0.059	0.455	1.16	7.80	146	<.0001	2.4
19-2	1.02	0.320	0.025	0.138	0.020	<.0001	<.0001	0.032	0.036	0.136	0.114	1.00	<.0001	2.0
20-S	0.97	0.118	0.119	0.201	<.0002	<.0001	<.0001	0.609	5.55	<.0002	1.40	0.976	<.0001	71
20-1	0.015	<.0002	<.0001	<.0002	0.015	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	20
22-S	14.4	0.001	2.0	7.81	<.0002	<.0001	<.0001	1.41	<.0001	<.0002	1.81	1.41	<.0001	54
22-1	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	2.6
31-S	45.2	4.80	15.9	6.10	<.0002	<.0001	<.0001	11.7	<.0001	<.0002	2.80	1.90	<.0001	5.6
32-S	33.4	7.90	3.50	7.50	<.0002	<.0001	<.0001	10.3	<.0001	<.0002	1.70	2.50	<.0001	5.8
33-S	73.2	4.90	16.9	2.90	0.011	<.0001	<.0001	14.9	<.0001	14.9	8.40	10.3	<.0001	5.4
33-1	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	4.6
34-S	3.05	0.045	0.789	0.007	<.0002	<.0001	<.0001	0.198	<.0001	<.0002	1.40	1.41	<.0001	2.0

Notes: Concentrations in mg/kg

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
34-1	0.369	<.0002	<.0001	0.271	<.0002	<.0001	<.0001	0.015	0.083	<.0002	<.0002	<.0001	<.0001	2.3
35-S	34.0	1.30	1.98	6.70	<.0002	<.0001	<.0001	2.91	4.90	<.0002	4.28	11.9	<.0001	54
36-S	110	7.90	8.10	10.2	<.0002	<.0001	<.0001	14.5	17.1	13.9	21.0	17.1	<.0001	7.2
37-S	26.8	0.171	0.491	0.692	<.0002	<.0001	<.0001	0.790	1.40	<.0002	1.36	21.9	<.0001	44
38-S	15.0	0.190	0.240	2.00	<.0002	<.0001	<.0001	2.60	<.0001	<.0002	5.10	4.9	<.0001	10
39-S	27.2	1.95	4.98	7.90	<.0002	<.0001	<.0001	5.20	<.0001	<.0002	4.30	2.90	<.0001	56
39-1	0.627	0.246	0.018	0.22	<.0002	0.026	<.0001	0.004	<.0001	0.011	0.014	0.088	<.0001	1.8
40-S	315	1.48	2.10	4.90	<.0002	<.0001	<.0001	3.50	1.98	215	71.5	14.8	<.0001	220
40-1	25.3	2.86	0.233	3.23	<.0002	<.0001	0.413	1.18	1.00	4.04	2.36	9.95	<.0001	1.8
40-2	4.79	<.0002	0.005	2.10	<.0002	<.0001	<.0001	0.007	<.0001	1.48	1.20	<.0001	<.0001	9.6
41-S	298	15.6	17.9	61.4	<.0002	42.6	<.0001	26.5	44.3	15.9	32.4	41.7	<.0001	37
41-1	1.91	0.353	0.037	0.780	<.0002	<.0001	<.0001	0.041	0.016	0.093	0.055	0.531	<.0001	9.8
42-S	166	0.082	0.091	0.400	<.0002	<.0001	<.0001	0.291	5.70	130	21.7	7.57	<.0001	8.1
43-S	119	2.57	1.98	4.10	<.0002	<.0001	<.0001	4.30	7.10	53.0	29.0	16.7	<.0001	34
44-S	29.1	1.89	1.49	2.90	<.0002	<.0001	<.0001	1.81	6.1	<.0002	14.9	<.0001	<.0001	52
45-S	440	0.817	1.67	1.49	<.0002	<.0001	<.0001	1.81	2.91	329	106	<.0001	<.0001	60
45-1	22.1	4.20	3.9	4.1	<.0002	<.0001	3.00	4.90	<.0001	2.0	<.0002	<.0001	<.0001	9.8
46-S	40.1	2.90	7.1	6.10	<.0002	<.0001	<.0001	7.5	<.0001	<.0002	6.8	9.7	<.0001	11

Note: Concentrations in mg/kg

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDT	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
47-S	75.0	7.1	14.2	4.9	<.0002	<.0001	<.0001	12.9	16.9	<.0002	6.9	12.1	<.0001	10
47-1	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	5.2
48-S	2.33	0.062	0.029	0.005	<.0002	<.0001	<.0001	0.148	0.298	<.0002	1.0	0.791	<.0001	44
50-S	281	34.5	10.0	88.0	<.0002	<.0001	<.0001	75.4	20.8	14.8	29.4	8.1	<.0001	56
50-1	2.67	0.450	0.032	0.720	<.0002	<.0001	0.070	0.084	0.110	0.282	0.175	0.747	<.0001	<1
52-S	51.5	0.130	0.440	3.03	<.0002	<.0001	<.0001	6.73	5.65	<.0002	15.6	19.9	<.0001	12
53-S	216	10.5	21.0	14.6	<.0002	15.2	<.0001	28.7	41.7	14.7	28.6	40.6	<.0001	12
53-1	26.8	3.90	2.90	1.67	<.0002	<.0001	7.90	3.58	<.0001	6.90	<.0002	<.0001	<.0001	26
54-S	12.5	4.52	7.99	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	6.6
54-1	1.88	0.353	0.024	0.485	<.0002	0.118	<.0001	0.048	<.0001	0.016	0.045	0.794	<.0001	14
57-S	31.2	0.723	0.739	7.48	<.0002	<.0001	<.0001	10.9	<.0001	<.0002	8.73	2.62	<.0001	11
58-S	171	16.7	16.3	21.5	<.0002	<.0001	<.0001	42.0	1.60	<.0002	55.6	17.4	<.0001	7.4
58-1	<.001	<.0002	<.0001	<.0002	<.0002	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0001	<.0001	4.0
59-S	289	21.4	19.5	18.7	<.0002	<.0001	<.0001	26.5	39.7	68.9	75.2	18.9	<.0001	11
59-1	25.6	3.60	2.90	2.10	<.0002	<.0001	6.10	6.10	<.0001	4.80	<.0002	<.0001	<.0001	17
60-S	10.8	0.091	0.039	0.028	<.0002	<.0001	<.0001	3.54	<.0001	0.750	4.90	1.50	<.0001	25
61-S	20.4	0.075	0.541	0.691	<.0002	<.0001	<.0001	17.5	0.400	0.370	0.298	0.411	<.0001	44
62-S	37.4	4.10	2.90	3.20	<.0002	<.0001	<.0001	14.4	2.48	5.91	0.201	4.20	<.0001	40
62-1	2.53	<.0002	0.029	<.0002	<.0002	<.0001	<.0001	0.194	0.843	0.952	<.0002	<.0001	<.0001	2.5

Note: Concentrations in mg/kg

Table 3-1 (Cont.)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Beta BHC	Aldrin	Heptachlor	Heptachlor Epoxide	p,p'DDE	o,p'DDD	o,p'DDT	Endrin	p,p'DDD	Dieldrin	Arsenic
63-S	4.64	0.198	0.298	0.348	<.0002	<.0001	<.0001	3.68	<.0001	<.0002	0.091	0.028	<.0001	42
64-S	30.6	0.298	0.791	0.648	<.0002	<.0001	<.0001	23.0	0.391	0.480	0.560	4.44	<.0001	54
65-S	0.509	<.0002	0.029	<.0002	<.0002	<.0001	<.0001	0.142	0.338	<.0002	<.0002	<.0001	<.0001	7.9
65-S	1.00	0.009	0.210	0.109	<.0002	<.0001	<.0001	0.557	<.0001	<.0002	0.102	0.009	<.0001	48
66-S	2405	15.0	29.0	36.5	0.098	<.0001	0.241	2000	101	198	<.0002	25.1	<.0001	65
67-S	14.4	0.291	0.23	0.598	<.0002	<.0001	<.0001	12.9	<.0001	<.0002	0.098	0.271	<.0001	65
68-S	30.7	6.90	4.98	6.57	<.0002	<.0001	<.0001	18.0	<.0001	<.0002	0.801	1.42	<.0001	57
69-S	6.84	0.391	0.548	0.421	<.0002	<.0001	<.0001	2.48	<.0001	<.0002	1.40	1.60	<.0001	48
70-S	4.04	0.168	0.257	0.360	<.0002	<.0001	<.0001	2.40	<.0001	<.0002	0.891	0.768	<.0001	71

Note: Concentrations in mg/kg

Table 3-2

PESTICIDE CONCENTRATIONS FOR SELECTED SOIL SAMPLES
USING EP-TOXICITY TESTING EXTRACTION PROCEDURES (µg/kg)

Sample Number	Cumulative Organic Pesticides	Alpha BHC	Lindane	Heptachlor	p,p'DDE	o,p'DDT	Endrin	p,p'DDD	Arsenic
41-S	4.60	1.03	0.05	2.80	0.14	<.20	0.58	<.10	<10
45-S	7.89	1.60	0.79	<.10	2.00	3.50	<.20	<.10	157
59-S	2.90	1.40	0.41	<.10	0.70	<.20	0.39	<.10	60
64-S	1.70	<.20	0.37	<.10	0.58	<.20	0.38	0.37	10

4. SITE HYDROLOGY

The Monroe area lies within the Piedmont physiographic province which characterizes most of northern Georgia. Bedrock in the region consists of igneous and metamorphic rocks. The overlying soils have formed in situ, directly from the weathered bedrock, and usually consist of red-colored silts and clays. This is essentially what E & E found at the site during its soil sampling program.

Groundwater in such areas may occur under water table conditions in the soil, usually in lower topographic areas, and in the bedrock itself, usually in higher topographic areas. The site under investigation occurs in a relatively high area, essentially on a topographic divide, according to the Monroe 7.5-Minute Topographic Map published by the United States Geological Survey (USGS). The site is indicated as occurring at an elevation of approximately 885 feet. The nearest perennially flowing streams occur at elevations nearly 100 feet lower than the site. This would tend to indicate that the water table probably underlies the site at depths of many tens of feet, and probably occurs in the bedrock and not the soil.

Because of the high clay content of the soils, precipitation does not readily infiltrate through them as groundwater recharge. This was quite noticeable during E & E's soil survey. Although the site was muddy and puddled because of recent rains, the one-foot samples were relatively dry. When this factor is combined with the surface versus one-foot analytical results presented in Section 3, there is no reason to think that a groundwater contamination problem would exist beneath the site.

E & E also contacted the USGS office in Atlanta to obtain location information on existing wells. The USGS is presently preparing a water resources report for Walton County. For this report, an inventory of existing wells has been made. The inventory shows that the closest operating wells are approximately two miles to the west in a completely different watershed.

5. SUMMARY AND CONCLUSIONS

The soil sampling program delineated areas of surface soils on-site containing pesticide concentrations apparently in excess of background levels. These areas are generally north and east of the warehouse building. Concentrations at depths as shallow as one foot, however, are usually two orders of magnitude lower than the surface concentrations, indicating that the site soils have significant adsorptive capability.

Analysis of extracts from some of the most contaminated soil samples, using the EP-Toxicity Test Extraction Procedure, produced concentrations in the low part per billion range. Such concentrations are well below the maximum allowable concentrations for the EP-Toxicity compounds.

The hydrogeology of the area and the specific site setting are such that the water table probably occurs at several tens of feet beneath the site. A significant soil thickness exists between the land surface and the water table. E & E's investigation has determined that the site soils are highly adsorptive with respect to the pesticides in question.

Based on the results of the investigation, E & E concludes the following:

- Based on the results of the EP-Toxicity testing, it is clear that no potential exists for significant amounts of pesticide to leave the site, in solution, in any surface water drainage.

- Based on the results of the EP-Toxicity testing and the depth-discrete soil sampling and analysis, it is clear that no potential exists for significant amounts of pesticide to leave the site by vertical infiltration to the water table.

- The only apparent routes of migration for pesticide contaminants to leave the site are in an adsorbed form on suspended sediment flowing through the northern culvert or in an adsorbed form on windblown dust.

APPENDIX A

LABORATORY PROCEDURES

A.1 METHODS OF ANALYSIS

A.1.1 Analysis for Pesticides

The pesticide analyses of specific samples were conducted in accordance with the procedures set forth in the United States Environmental Protection Agency (EPA) publication, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982. All samples were prepared by soxhlet extraction, as specified in method 3540 of the EPA publication. In addition, additional aliquots of four of the samples were subjected to the EP-Toxicity Test Extraction Procedure, as specified in method 1310 of the EPA publication. Once prepared, each sample was then analyzed by a gas chromatograph (Varian Model 3700) equipped with an electron capture detector, as specified in method 8080 of the EPA publication.

When pesticides were determined to be present, an additional confirmation step was employed. This step involved the use of an alternate gas chromatographic column to confirm the identity of the pesticide. The chromatographic conditions for the primary and secondary columns can be found in Tables A-1 and A-2, respectively.

A.1.2 Analysis for Arsenic

Arsenic was analyzed on an atomic absorption spectrophotometer (Instrumentation Laboratory Model 457) according to method 7060 of the EPA publication.

A.2 QUALITY ASSURANCE

All phases of this study, including the final report, have been independently audited by E & E's internal quality assurance group. All data and the contents of the report have been accepted by the group and authorized for release.

A.3 QUALITY CONTROL

All glassware used is washed with soap, rinsed with deionized water, rinsed again with acetone and hexane, and dried in an oven. The glassware used for metals is rinsed with nitric acid followed by deionized water and is then dried in an oven.

All solvents are pesticide grade and are subjected to extraction and concentration procedures similar to those used for actual samples.

Low working-level standards are prepared fresh daily from stock standards. The stock standards are prepared fresh monthly from pure analytical standards.

The accuracy of the analytical method is determined by the use of spiked samples* and is calculated as the percent recovery. Spikes of varying amounts were analyzed to insure the accuracy of the method. The percent recovery for the spiked samples is given in Table A-3.

The precision of the analytical method is determined by the analyses of replicate samples. Results of the replicate analyses appear in Table A-4.

Consistent with the quality control program, a sample blank was analyzed to determine whether any interferences were present that may have been contributed by the solvents, the glassware, or the procedure itself. No interferences were detected.

In addition to the recommended confirmational procedures, the presence and identity of pesticides in selected samples were further confirmed via a gas chromatograph/mass spectrometer.

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*Spiked samples are those that have a known quantity of chemical added and are used to estimate accuracy through percent recovery.

Table A-1

CHROMATOGRAPHIC CONDITIONS
PRIMARY COLUMN

Operator Linda Franzek
Date January 30, 1984
Job Number CC-263
Sample Identification 4750-4932
Solvent Hexane
Analytical Method 8080*

COLUMN
Type Glass
Length 6'
Diameter 1/4" OD, 4mm ID
Liquid Phase (% wt.) 4% SE-30/6% QF-1
Support Supelcoport
Mesh 100/120

CARRIER GAS Nitrogen
Rotameter 30
Inlet Pressure, psig 40
Flow Rate, mL/min. 30

SCAVENGER GAS

SPLIT

FID GAS
Hydrogen, mL/min.
Air, mL/min.

CHART SPEED, cm/min. 1

DETECTOR ECD
Range 10^{-12}
Attenuation 256

TEMPERATURE, °C
Detector 300
Injection Port 220
Column
Initial 200
Program
Final

INSTRUMENT Varian Model 3700

*Publication: United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982.

Table A-2

CHROMATOGRAPHIC CONDITIONS
SECONDARY COLUMN

Operator Linda Franzek
Date January 30, 1984
Job Number CC-263
Sample Identification 4750-4932
Solvent Hexane
Analytical Method 8080*

COLUMN
Type Glass
Length 6'
Diameter 1/4" OD, 4mm ID
Liquid Phase (% wt.) 1.5% OV-1/1.95% QF-1
Support Supelcoport
Mesh 100/120

CARRIER GAS Nitrogen
Rotameter 30
Inlet Pressure, psig 40
Flow Rate, mL/min. 30

SCAVENGER GAS

SPLIT

FID GAS
Hydrogen, mL/min.
Air, mL/min.

CHART SPEED, cm/min. 1

DETECTOR ECD
Range 10^{-12}
Attenuation 256

TEMPERATURE, °C
Detector 300
Injection Port 220
Column
Initial 200
Program
Final

INSTRUMENT Varian Model 3700

*Publication: United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982.

Table A-3

QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY
FOR SPIKED SAMPLES
(mg/kg as received)

Compound	E & E Laboratory No. 83-	Field Sample No.	Original Value	Amount Added	Amount Determined	Percent Recovery
Arsenic	139	70-S	.71	.05	.707	99.6
Arsenic	4779	10-S	.045	.05	.094	97.6
Arsenic	4819	22-S	.054	.05	.099	90.2
Arsenic	4864	37-S	.044	.05	.087	85.4
Arsenic	4870	39-S	.056	.05	.103	93.0
Lindane	4893	47-1	ND	0.60	0.65	108
Heptachlor	4893	47-1	ND	0.60	0.63	105
Aldrin	4893	47-1	ND	0.60	0.68	113
Lindane	4928	58-1	ND	0.60	0.60	100
Heptachlor	4928	58-1	ND	0.60	0.59	98.3
Aldrin	4928	58-1	ND	0.60	0.58	96.7
Lindane	4853	33-1	ND	0.60	0.55	91.7
Heptachlor	4853	33-1	ND	0.60	0.61	102
Aldrin	4853	33-1	ND	0.60	0.59	98.3
Endrin	4814	20-1	1.4	0.90	2.25	97.8
Heptachlor Epoxide	4814	20-1	ND	0.40	0.37	92.5
Dieldrin	4814	20-1	ND	2.0	1.95	97.5
Endrin	4800	17-S	0.98	0.90	1.75	93.1
Heptachlor Epoxide	4800	17-S	ND	0.40	0.32	80.0
Dieldrin	4800	17-S	ND	2.0	1.87	93.5
Endrin	129	65-S	0.102	0.90	0.98	109
Heptachlor Epoxide	129	65-S	ND	0.40	0.39	97.5
Dieldrin	129	65-S	ND	2.0	1.91	95.5

Table A-4

QUALITY CONTROL FOR PRECISION
RESULTS OF REPLICATE ANALYSES
(mg/kg as received)

Parameter	E & E Laboratory No. 83-	Field Sample No.	Original Analysis (A)	Replicate Analysis (B)	Relative Percent Difference (RPD)
Arsenic	4870	39-S	5.9	6.1	3.3
Arsenic	4883	44-S	41	40	2.5
Arsenic	C-	Composite	97	64	41
Arsenic	129	65-S	48	49	2.1
Arsenic	4864	37-S	4.8	5.6	15
Alpha-BHC	4807	19-1	0.015	0.013	14
Lindane	4807	19-1	0.029	0.021	32
Beta-BHC	4807	19-1	0.333	0.236	34
p,p'DDE	4807	19-1	0.059	0.054	8.8
o,p'DDD	4807	19-1	0.455	0.422	7.5
Aldrin	4814	20-1	0.015	0.017	12
Pesticides	4820	22.1	ND	ND	0

ND = None detected at the stated detection limit.

$$RPD = \frac{[A-B]}{A+B/2} \times 100$$

NFA

RW OK

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

EPA | REGION | SITE NUMBER (to be assigned by Hq)

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System, Hazardous Waste Enforcement Task Force *(EN-335)*, 401 M St., SW Washington, DC 20460.

I. IDENTIFICATION

A. GAD980556831 WALTON
ARNOLD, G.M. CO
FAMBROUGH ST
C. MONROE GA 30655
BISHOP, K.C. 4158949076

B. ON (for other identifier)

E. ZIP CODE | F. COUNTY NAME

G. TELEPHONE NUMBER

H. TYPE OF OWNERSHIP
☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☐ 5. PRIVATE

I. S
"103-C NOTIFICATION" DATE: 810609
JIM SEIZER
J. P PHONE: 404-656-2833

K. DATE IDENTIFIED (mo., day, & yr.)

L. TELEPHONE NUMBER

II. PRELIMINARY ASSESSMENT (complete this section last)

A. APPARENT SERIOUSNESS OF PROBLEM
☐ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☒ 4. NONE ☐ 5. UNKNOWN

B. RECOMMENDATION
☒ 1. NO ACTION NEEDED *(no hazard)*
☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR
b. WILL BE PERFORMED BY
☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR
b. WILL BE PERFORMED BY
☐ 4. SITE INSPECTION NEEDED *(low priority)*

C. PREPARER INFORMATION
1. NAME | 2. TELEPHONE NUMBER | 3. DATE (mo., day, & yr.) 82 09 15

III. SITE INFORMATION

A. SITE STATUS
☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*
☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*
☐ 3. OTHER *(specify)* *(Those sites that include such practices like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?
☐ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*

C. AREA OF SITE *(in acres)*

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES
1. LATITUDE *(deg.-min.-sec.)* | 2. LONGITUDE *(deg.-min.-sec.)*

E. ARE THERE BUILDINGS ON THE SITE?
☐ 1. NO ☐ 2. YES *(specify)*

Continue On Reverse

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

'X'	A. TRANSPORTER	'X'	B. STORER	'X'	C. TREATER	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION	2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION	3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY	4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT	5. MIDNIGHT DUMPING
	6. OTHER (specify)		6. OTHER (specify)		6. BIOLOGICAL TREATMENT	6. INCINERATION
					7. WASTE OIL REPROCESSING	7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY	8. OTHER (specify)
					9. OTHER (specify)	

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

V. WASTE RELATED INFORMATION

A. WASTE TYPE

[ ] 1 UNKNOWN [ ] 2 LIQUID [ ] 3 SOLID [ ] 4 SLUDGE [ ] 5 GAS

B. WASTE CHARACTERISTICS

[ ] 1 UNKNOWN [ ] 2 CORROSIVE [ ] 3 IGNITABLE [ ] 4 RADIOACTIVE [ ] 5 HIGHLY VOLATILE
[ ] 6 TOXIC [ ] 7 REACTIVE [ ] 8 INERT [ ] 9 FLAMMABLE

[ ] 10. OTHER (specify)

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc., below.

2. Estimate the amount (specify unit of measure) of waste by category, mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
'X' (1) PAINT, PIGMENTS	'X' (1) OILY WASTES	'X' (1) HALOGENATED SOLVENTS	'X' (1) ACIDS	'X'	'X' (1) LABORATORY / PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify)	(2) NON-HALOGENATED SOLVENTS	(2) PICKLING LIQUORS		(2) HOSPITAL
(3) POTW		(3) OTHER (specify)	(3) CAUSTICS		(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES		(4) MUNICIPAL
(5) OTHER (specify)			(5) DYES/INKS		(5) OTHER (specify)
			(6) CYANIDE		
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

Continue On Page 3

POTENTIAL HAZARDOUS WASTE SITE
IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION | SITE NUMBER (To be assigned by HQ)

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II *(Preliminary Assessment)*. File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: ARNOLD, H. M. Co
B. STREET *(or other identifier)*: FAMBROUGH ST
C. CITY: MONROE
D. STATE: GA
E. ZIP CODE: 30655
F. COUNTY NAME: WALTON
G. OWNER/OPERATOR *(If known)*
1. NAME: BISHOP, K. C. (CHEVRON)
2. TELEPHONE NUMBER: 915 894 9076
H. TYPE OF OWNERSHIP
☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE ☐ 6. UNKNOWN
I. SITE DESCRIPTION: SPILL
J. HOW IDENTIFIED *(i.e., citizen's complaints, OSHA citations, etc.)*: 103 C NOTIFICATION
K. DATE IDENTIFIED *(mo., day, & yr.)*: 6-9-81
L. PRINCIPAL STATE CONTACT
1. NAME: MOSES N. McCALL III
2. TELEPHONE NUMBER: 404 656-2833

II. PRELIMINARY ASSESSMENT *(complete this section last)*

A. APPARENT SERIOUSNESS OF PROBLEM
☐ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☒ 4. NONE ☐ 5. UNKNOWN
B. RECOMMENDATION
☒ 1. NO ACTION NEEDED *(no hazard)*
☐ 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:
☐ 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:
☐ 4. SITE INSPECTION NEEDED *(low priority)*
C. PREPARER INFORMATION
1. NAME: JIM USSERY
2. TELEPHONE NUMBER: 404 656 2833
3. DATE *(mo., day, & yr.)*: 9-15-82

III. SITE INFORMATION

A. SITE STATUS
☐ 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)*
☐ 2. INACTIVE *(Those sites which no longer receive wastes.)*
☑ 3. OTHER *(specify)*: SPILL *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*
B. IS GENERATOR ON SITE?
☒ 1. NO ☐ 2. YES *(specify generator's four-digit SIC Code)*:
C. AREA OF SITE *(in acres)*: UNKNOWN
D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES
1. LATITUDE *(deg.—min.—sec.)*:
2. LONGITUDE *(deg.—min.—sec.)*:
E. ARE THERE BUILDINGS ON THE SITE?
☒ 1. NO ☐ 2. YES *(specify)*:

Continue On Reverse

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY	X	8. OTHER (specify): SPILL
					9. OTHER (specify):		

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

SPILL

V. WASTE RELATED INFORMATION

A. WASTE TYPE

☐ 1. UNKNOWN ☒ 2. LIQUID ☐ 3. SOLID ☐ 4. SLUDGE ☐ 5. GAS

B. WASTE CHARACTERISTICS

☐ 1. UNKNOWN ☐ 2. CORROSIVE ☐ 3. IGNITABLE ☐ 4. RADIOACTIVE ☐ 5. HIGHLY VOLATILE
☒ 6. TOXIC ☐ 7. REACTIVE ☐ 8. INERT ☐ 9. FLAMMABLE

☐ 10. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

NO

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT UNKNOWN	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE
☐ (1) PAINT, PIGMENTS	☐ (1) OILY WASTES	☐ (1) HALOGENATED SOLVENTS	☐ (1) ACIDS	☐ (1) FLYASH	☐ (1) LABORATORY PHARMACEUT.
☐ (2) METALS SLUDGES	☐ (2) OTHER (specify):	☐ (2) NON-HALOGNTD. SOLVENTS	☐ (2) PICKLING LIQUORS	☐ (2) ASBESTOS	☐ (2) HOSPITAL
☐ (3) POTW		☐ (3) OTHER (specify):	☐ (3) CAUSTICS	☐ (3) MILLING/ MINE TAILINGS	☐ (3) RADIOACTIVE
☐ (4) ALUMINUM SLUDGE			☒ (4) PESTICIDES	☐ (4) FERROUS SMLTG. WASTES	☐ (4) MUNICIPAL
☐ (5) OTHER (specify):			☐ (5) DYES/INKS	☐ (5) NON-FERROUS SMLTG. WASTES	☐ (5) OTHER (specify):
			☐ (6) CYANIDE	☐ (6) OTHER (specify):	
			☐ (7) PHENOLS		
			☐ (8) HALOGENS		
			☐ (9) PCB		
			☐ (10) METALS		
			☐ (11) OTHER (specify)		

Continue On Page 3

Continued From Page 2

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE (place in descending order of hazard).

PESTICIDES

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo., day, yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH				
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY				
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER	X			
8. CONTAMINATION OF SURFACE WATER	X			
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS				
13. CONTAMINATION OF SOIL	X			
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/ RUNOFF/STANDING LIQUIDS				
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify):				

Continued From Front

VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

☐ 1. NPDES PERMIT ☐ 2. SPCC PLAN ☐ 3. STATE PERMIT *(specify)*: _____

☐ 4. AIR PERMITS ☐ 5. LOCAL PERMIT ☐ 6. RCRA TRANSPORTER

☐ 7. RCRA STORER ☐ 8. RCRA TREATER ☐ 9. RCRA DISPOSER

☒ 10. OTHER *(specify)*: NONE

B. IN COMPLIANCE?

☐ 1. YES ☐ 2. NO ☒ 3. UNKNOWN

4. WITH RESPECT TO *(list regulation name & number)*: _____

VIII. PAST REGULATORY ACTIONS

☒ A. NONE ☐ B. YES *(summarize below)*

IX. INSPECTION ACTIVITY *(past or on-going)*

☒ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY: *(EPA/State)*	4. DESCRIPTION

X. REMEDIAL ACTIVITY *(past or on-going)*

☒ A. NONE ☐ B. YES *(complete items 1, 2, 3, & 4 below)*

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION *(mo., day, & yr.)*	3. PERFORMED BY: *(EPA/State)*	4. DESCRIPTION

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment *(Section II)* information on the first page of this form.